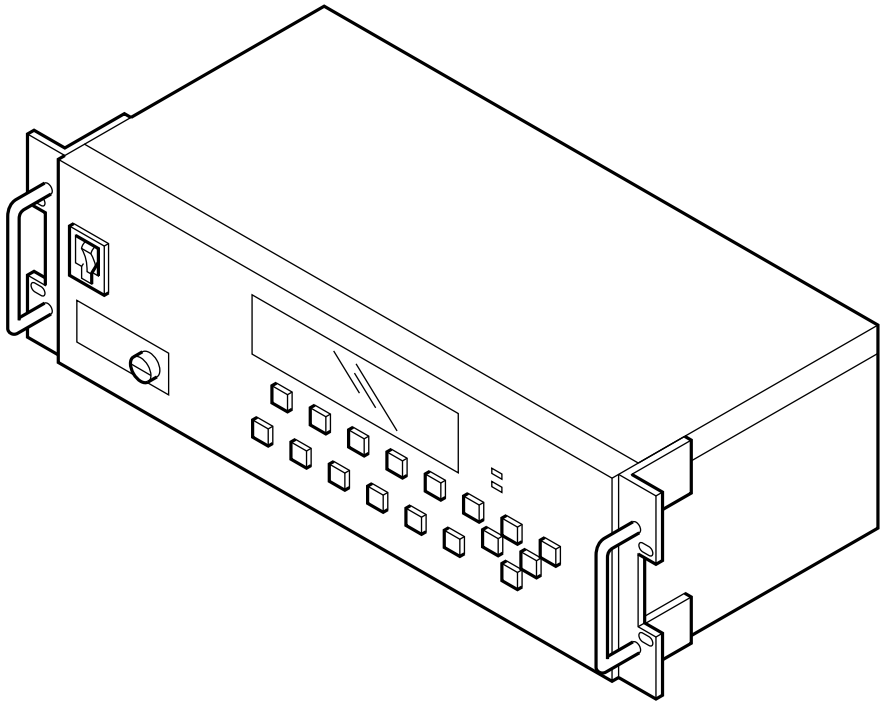
SERVICE MANUAL

JumboTron

MODEL	DEST.
JTC-C200	World



ICU CONTROLLER

SONY

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injuly, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNING!!

AN INSULATED TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF THE LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY A ⚠ MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ÉLECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS ÁLA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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SONY

3-864-848-**11** (1)

JumboTron Image Control System

Operating Instructions
Before operating the unit, please read this manual thoroughly and retain it for future reference.

JumboTron

JTC-C200 ICU Controller
JTC-P200 Image Control Unit
JTA-LS200 ABC Sensor Unit

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SECTION 1
OPERATING INSTRUCTIONS

This section is extracted from operation manual.

Sony Corporation Printed in Japan

Owner's Record

The model and serial numbers are located on the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For JTC-C200 and JTC-P200

Attention – when the product is installed in a rack:

- **Elevated operating ambient temperature**
  If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient.
  Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature of 0 to 45°C (Tmra).
- **Reduced air flow**
  Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading**
  Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit overloading**
  Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring.
  Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable earthing**
  Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

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About This Manual

This instruction manual is aimed at the ICU operator and it explains how to display the images on the JumboTron screen using the JTC-P200 ICU (Image Control Unit) and the JTC-C200 ICU controller of the JumboTron system.
The operator is also required to have knowledge of image output equipment, such as VCRs, video cameras and computers. For the operation of these pieces of equipment, refer to their operation manuals. For the maintenance and adjustment of the JumboTron System, consult with qualified Sony service personnel.

Precautions

On safety

- Do not forcibly bend the power cord. Do not place or drop any heavy object on it. If the power cord has been damaged, a fire or electric shock hazard may occur.
- To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not use a damaged power cord.
- Do not drop any liquid or solid object into the cabinet.
- Do not open the cabinet.
- Do not use or leave the unit at extremely high or low temperatures.
- Do not use or leave the unit in high humidity.

On cleaning

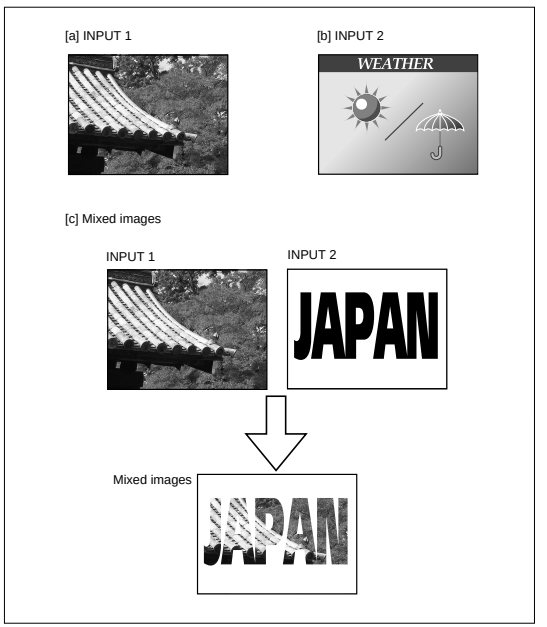
- Clean the case and front panel with a dry soft cloth, or a soft cloth slightly moistened with a mild detergent solution. Do not use any organic solvents, such as alcohol or benzine which might damage the finish.
- Be sure to unplug the unit before cleaning.

Overview of the JumboTron System

The JumboTron system displays video images on a large screen (JumboTron screen) located either outdoors or indoors. Images from video sources such as a VCR, video camera and computer can be displayed on the screen.
The JumboTron system provides superb bright images with high resolution, regardless of whether it is day or night, indoors or outdoors.

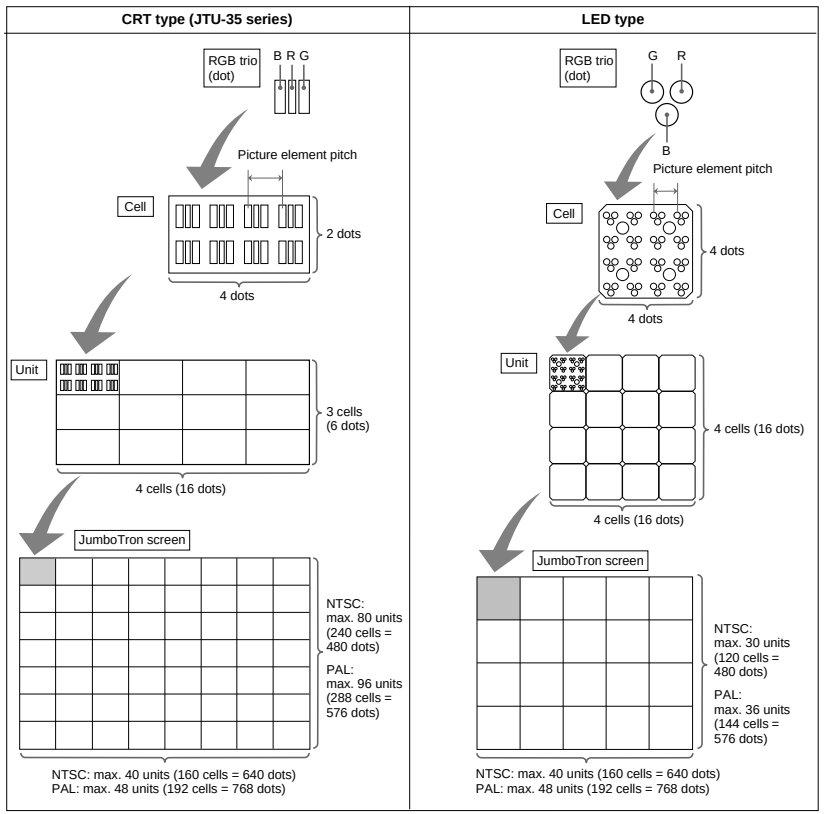
Images to be displayed on the JumboTron screen

The JumboTron system can display the following three types of images:
[a] Video images input from equipment such as a VCR, video camera and video disc (INPUT 1)
[b] Computer graphics (INPUT 2)
[c] Mixed images of INPUT 1 and INPUT 2
(INPUT 1 images are superimposed on the monochrome area of the INPUT 2 images.)



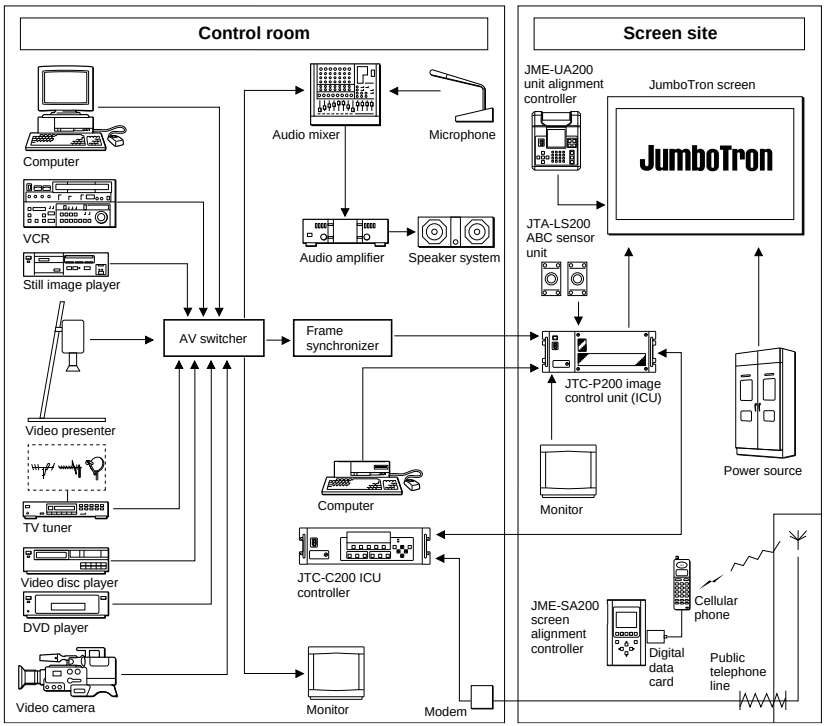
Structure of the JumboTron screen

Two types of the JumboTron screen are available. One is the conventional CRT type screen in which light emitting bodies of three primary colors (R, G and B), "Trinilite," are used as the light emitting element. The other is the new LED type screen in which light emitting diodes of the three primary colors are used.
The basic element of the JumboTron screen is an RGB trio (dot).
A "cell" consists of the dots arranged at a certain interval (picture element pitch) and a "unit (JumboTron display unit)" consists of 12 cells for the CRT type and 16 cells for the LED type.
There are three unit types, the JTU-35 series (with 35-mm picture element pitch) and JTU-17 series (with 17.5-mm pitch) of the CRT type, and the LDU-15 series (with 15-mm pitch) of the LED type. You can configure a large JumboTron screen by arranging the JumboTron display units vertically and horizontally to suit various uses or locations.


CRT type (JTU-35 series)
LED type
RGB trio (dot)
B R G
G R
B
Picture element pitch
Cell
2 dots
4 dots
Unit
3 cells (6 dots)
4 cells (16 dots)
JumboTron screen
NTSC: max. 80 units (240 cells = 480 dots)
PAL: max. 96 units (288 cells = 576 dots)
NTSC: max. 30 units (120 cells = 480 dots)
PAL: max. 36 units (144 cells = 576 dots)
NTSC: max. 40 units (160 cells = 640 dots)
PAL: max. 48 units (192 cells = 768 dots)

Configuration of the JumboTron system

The following is the suggested configuration of the JumboTron system.



Features

JTC-C200 ICU controller

The JTC-C200 ICU controller is the remote controller for the JTC-P200 ICU (Image Control Unit) which controls the images on the JumboTron screen. Using the ICU controller, you can control the ICU from a control room at a distance of up to 500 m (1640 feet). The main functions of the JTC-C200 are as follows:

Turning on/off the ICU and screen
You can turn the ICU and the JumboTron screen on and off.

Selection of screen display mode
You can select the images to be displayed on the JumboTron screen from among three modes: INPUT 1 (video images), INPUT 2 (computer graphics) and MIX (mixed images).

Adjustments of the images on the screen
You can adjust the brightness, hue, color and sharpness of the images on the screen.
The brightness can be automatically adjusted according to the ambient light with the JTA-LS200 ABC sensor unit. You can also set the desired brightness level manually, and four brightness levels can be stored in the memory and recalled at a touch.

JTC-P200 ICU (Image Control Unit)

The JTC-P200 controls the images on the JumboTron screen.

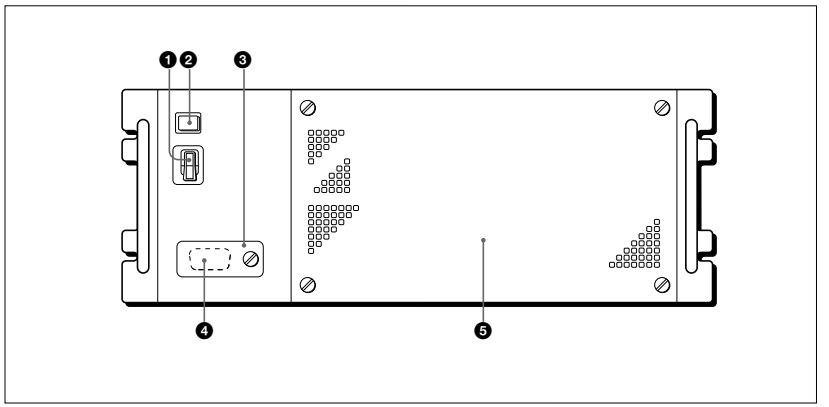
JTA-LS200 ABC sensor unit

The JTA-LS200 ABC (Automatic Brightness Control) sensor unit connected to the ICU senses the ambient light for the automatic brightness control.

Locations and Functions of Parts and Controls

JTC-P200 ICU (Image Control Unit)

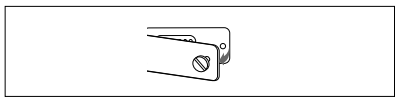
Front panel



❶ POWER switch
Turns the ICU on/off.

❷ Power lamp
Lights when the ICU is turned on.

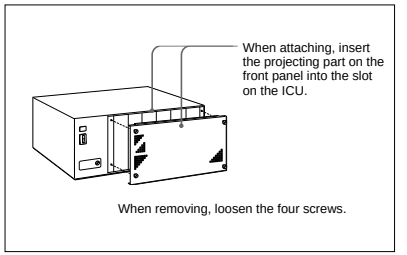
❸ Connector panel
The CONTROL 4 connector is inside. When using the connector, open the connector panel by loosening the screw.



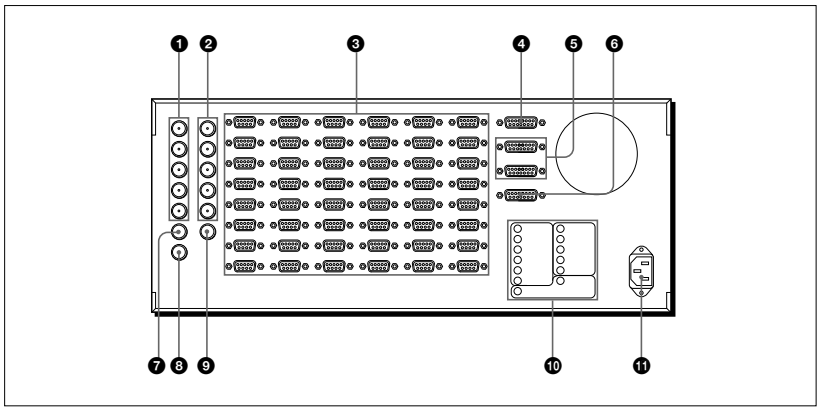
❹ CONTROL 4 connector (D-sub 15-pin)
This is an RS-422 input port. Connect it to peripheral equipment such as the JTC-C200 ICU controller for maintenance.

❺ Front cover
To remove the panel, loosen the four screws.

To remove/attach the front panel


When attaching, insert the projecting part on the front panel into the slot on the ICU.
When removing, loosen the four screws.

Rear panel



❶ INPUT 1 (R/R-Y, G/Y, B/B-Y, HD/COMP, VD) connectors (BNC type)
Connect to the AV switcher to which video equipment, such as VCRs and video cameras are connected.

❷ INPUT 2 (R, G, B, HD/COMP, VD) connectors (BNC type)
Connect to a computer.
If the computer has a H/V separate sync signal, connect it to the HD/COMP and VD connectors. If the computer has a composite sync signal, connect it to the HD/COMP connector only.

Note
When a computer with a sync signal on G-signal is connected and an external sync signal is input, the hue of the images may change. In this case, use the internal sync signal.

❸ SIGNAL OUT connectors (High-density D-sub 15-pin)
Connect to the JumboTron display units using the JCC-L10/L20/L30 connecting cable (not supplied).

❹ CONTROL 1/LS (sensor) connector (D-sub 15-pin)
Connect to the JTA-LS200 ABC sensor unit using the specified connecting cable (not supplied). The JTC-C200 ICU controller can also be connected to this connector.

❺ CONTROL 2 and CONTROL 3 connectors (D-sub 15-pin)
Connect to the JTC-C200 ICU controller.

❻ EXTERNAL CONTROL connector (D-sub 15-pin)
Connect to the power distribution panel of the system, etc.

❼ VIDEO IN connector (BNC type)
This is a composite video input connector.

❽ VIDEO OUT connector (BNC type)
This is a loop-through output for the VIDEO IN connector.

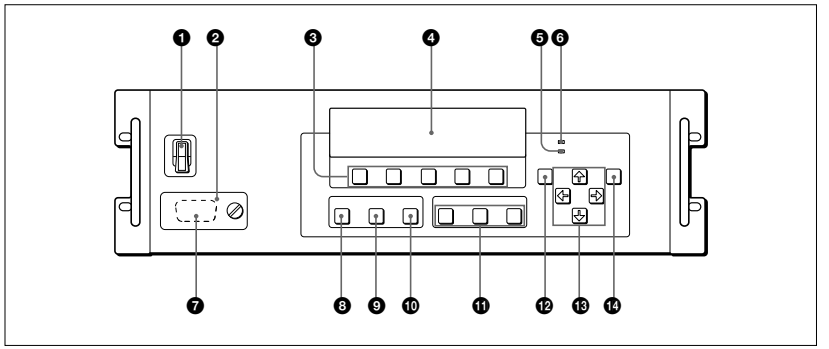
❾ MONITOR OUT connector (BNC type)
Connect to the video input connector of the video monitor.

❿ Input/output connector indications
Indicates the location of the input/output connectors at the right end of the rear panel.

⓫ AC IN connector
Connect to an AC power supply of 100 - 240 V AC. Use the supplied AC power cord which fits the AC outlet in your area.

JTC-C200 ICU controller

Front panel



❶ POWER switch
Turns the ICU controller on/off.

❷ Connector panel
The CONTROL 2 connector is inside. When using the connector, open the connector panel by loosening the screw.

❸ Function buttons (F1 – F5)
The functions of the buttons change with the stage of the operation. The current functions are indicated in the display window.
For details, see the chapter "Operation."

❹ Display window
Indicates the menus and the functions of the function buttons.

❺ REMOTE lamp
Currently not used. This is provided for future extended use.

❻ INFORMATION lamp
Lights when a screen abnormality is detected.

❼ CONTROL 2 connector (D-sub 15-pin)
Connect to the CONTROL connector of the JME-SA200 screen alignment controller for wired control.

❽ ICU power button and lamp
Hold down the button for more than a second to turn the power of the JTC-P200 ICU connected to the CONTROL 1 connector of the ICU controller on and off. The button lights when the ICU is turned on.

❾ SCREEN power button and lamp
Hold down the button for more than a second to turn the power of the screen on and off. The button lights when the screen is turned on.

❿ UTILITY button and lamp
Turns the power of the equipment connected to the EXTERNAL CONTROL connector on and off. The button lights when the connected equipment is turned on.

⓫ Display mode buttons and lamps
Selects the image mode to be displayed on the screen. The selected button lights.
INPUT 1: Displays the images selected via the AV switcher connected to the INPUT 1 connectors of the ICU.
INPUT 2: Displays the computer graphics from the computer connected to the INPUT 2 connectors of the ICU.
MIX: Displays the video images superimposed on the monochrome areas of the computer graphics.

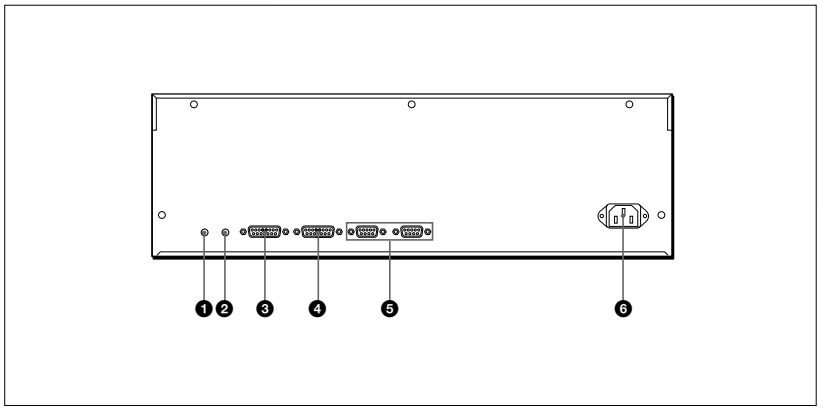
⓬ MENU button
Displays the menu in the display window or returns to the menu in the upper directory.

⓭ CURSOR ⇧/⇩/⇦/⇨ buttons
Selects the menu items in the display window or changes the set values.

⓮ ENTER button
Confirms the selected item and stores the set value.

Locations and Functions of Parts and Controls

Rear panel



❶ ID selector
When two or more ICU controllers are used in the system, set the ID number for each ICU controller.
For details, see page 15.

❷ MODE selector
This is provided for future extended use. Normally set to 0.

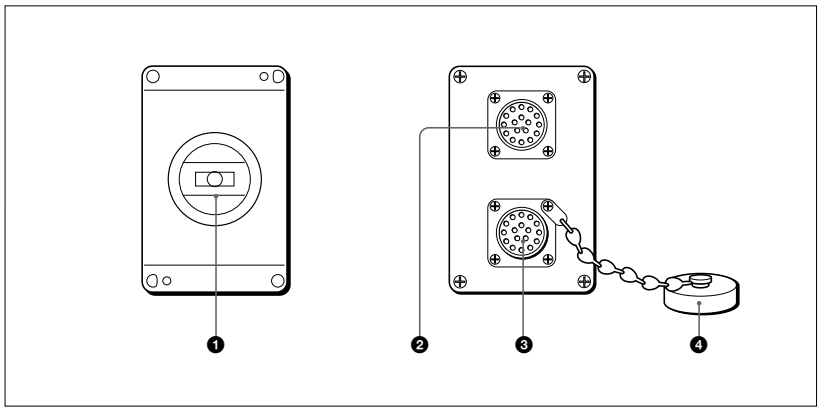
❸ EXTERNAL CONTROL connector (D-sub 15-pin)
Connect to the power distribution panel of the system.

❹ CONTROL 1 connector (D-sub 15-pin)
Connect to the CONTROL1, CONTROL 2, CONTROL 3 or CONTROL 4 connector of the ICU.

❺ COM1 and COM 2 connectors (D-sub 9-pin)
Connect to the computer or the modem.

❻ AC IN connector
Connect to an AC power supply of 100 – 240 V AC. Use the supplied AC power cord which fits the AC outlet in your area.

JTA-LS200 ABC sensor unit



❶ ABC (Automatic Brightness Control) sensor
Senses the ambient light.

❷ IN connector (Round type, 17-pin)
When two or more ABC sensor units are used in the system, connect the first sensor unit to the CONTROL 1/LS connector of the ICU. Connect the second sensor unit and others to the OUT connectors of other sensor units.

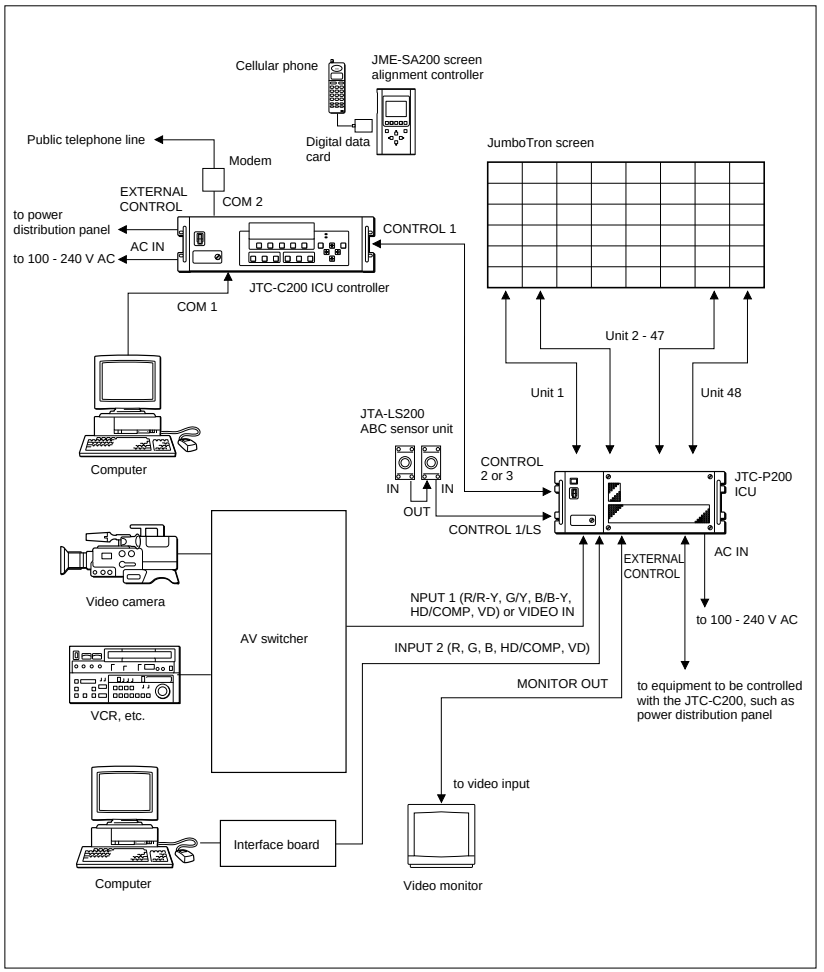
❸ OUT connector (Round type, 17-pin)
Connect to the IN connector of another ABC sensor unit.

❹ Connector cap
Put the cap on the OUT connector when it is not used.

Connections

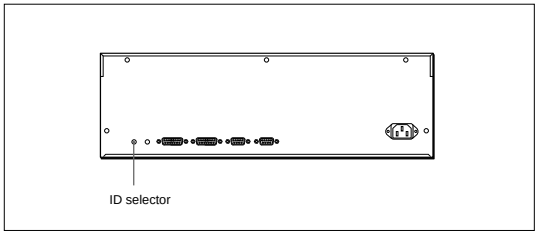
Turn off the power to all equipment when making the connections.
Check that the connectors are fully inserted before using.

JumboTron system configuration



Setting the ID number of the JTC-C200 ICU controller

When two or more JTC-C200 ICU controllers are used in the JumboTron system, set the individual ID number on each ICU controller with the ID selector on the rear panel. If the same ID number is set on two or more ICU controllers, the system does not operate correctly.



Displaying Images on the Screen

With the JTC-C200 ICU controller, you can select the images to be displayed on the JumboTron screen.

Preparing the system

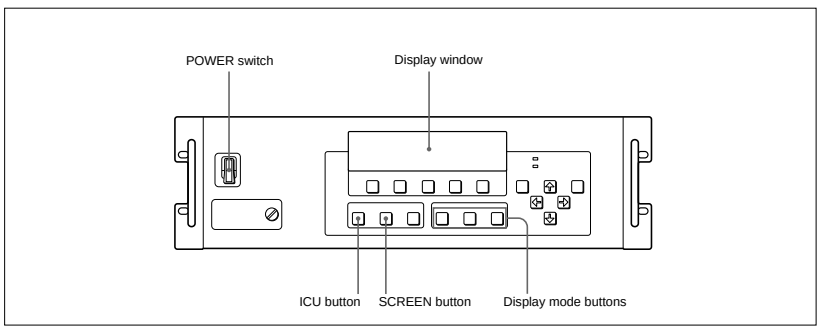
Do the following before remote control operation with the ICU controller:

1 Turn on the power switch on the power distribution panel which supplies the power to the JumboTron system.

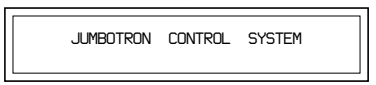
2 Turn on the equipment which sends the images, such as VCRs and computers.

3 Press the I side of the POWER switch on the ICU to turn it on.

Displaying images



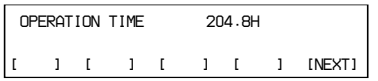
1 Press the I side of the POWER switch on the ICU controller to turn on the power of the ICU controller.



2 Hold down the ICU button for more than a second.
The button lights and the ICU turns on.

3 Hold down the SCREEN button for more than a second.
The button lights and the JumboTron screen turns on.
When the system has started, the normal display appears.

Normal display



4 Press the display mode button to select the images to be displayed on the screen.
The pressed button lights.

Press	To display
INPUT 1	Video images from VCR, video camera, etc.
INPUT 2	Computer graphics from the computer
MIX	Computer graphics with superimposed video images

Note

To display the video images by pressing the INPUT 1 button, set the type of the input signal correctly. If it is set incorrectly, the video images may be distorted.
For setting the type of the input signal, see page 21.

5 Operate the image output equipment to send the images.

6 Adjust the brightness, picture quality, picture size/shift on the screen.
To set to the preset brightness level, see "Selecting the brightness of the screen" on page 19.
To set to the preset picture size/shift, "Selecting the picture size/shift on the screen" on page 20.
For details on the brightness or picture quality adjustment, see "Adjusting the Brightness of the Screen" on page 23, and "Adjusting the Picture on the Screen" on page 27.

After use

1 Hold down the SCREEN button for more than a second to turn off the screen.
2 Hold down the ICU button on the ICU controller for more than a second to turn off the ICU.
(Normally keep the POWER switch on the ICU on.)
3 Stop the image sending by operating the image output equipment and turn it off.
4 Press the O side of the POWER switch on the ICU controller to turn off the ICU controller.
5 Turn off the power switch of the power distribution panel.

When the JumboTron system is not used for a long period of time

Make sure to turn off the whole system with the power switch on the power distribution panel.

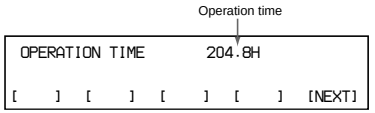
Turning on the ICU again

Wait for more than three minutes before you turn it on again.

Displaying Images on the Screen

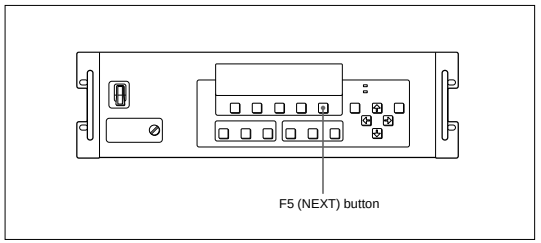
Checking the operation time

The operation time (OPERATION TIME) of the system is displayed on the normal display.



If the operation time does not appear in the display window

There are four normal displays, and you can select them with the F5 (NEXT) button. Press the F5 (NEXT) button repeatedly until the operation time appears.



To switch the normal displays

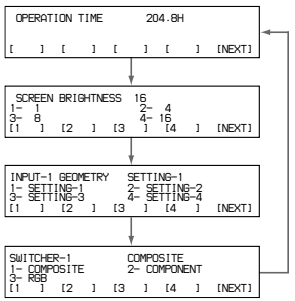
The following four displays appear in order by pressing the F5 (NEXT) button.

OPERATION TIME (operation time) display

SCREEN BRIGHTNESS (screen brightness select) display

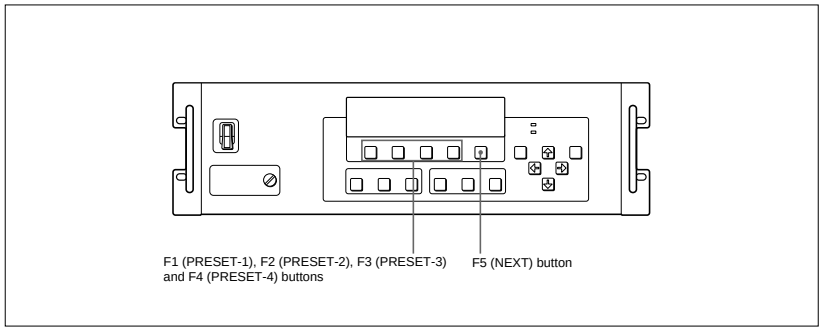
INPUT-1 GEOMETRY (INPUT-1 picture size/shift select) display

SWITCHER-1 (input video signal select) display


OPERATION TIME 204.8H
[ ] [ ] [ ] [ ] [NEXT]
SCREEN BRIGHTNESS 16
1– 1 2– 4
3– 8 4– 16
[1] [2] [3] [4] [NEXT]
INPUT–1 GEOMETRY SETTING–1
1– SETTING–1 2– SETTING–2
3– SETTING–3 4– SETTING–4
[1] [2] [3] [4] [NEXT]
SWITCHER–1 COMPOSITE
1– COMPOSITE 2– COMPONENT
3– RGB
[1] [2] [3] [4] [NEXT]

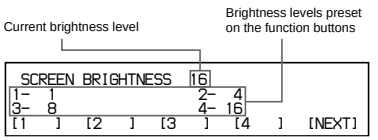
Selecting the brightness of the screen

You can set the brightness of the screen instantly by recalling one of the four preset brightness levels.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the SCREEN BRIGHTNESS display appears.

The current brightness level and the brightness levels preset on the function buttons are shown on the display.



2 Press the F1, F2, F3 or F4 button to select the desired brightness level.

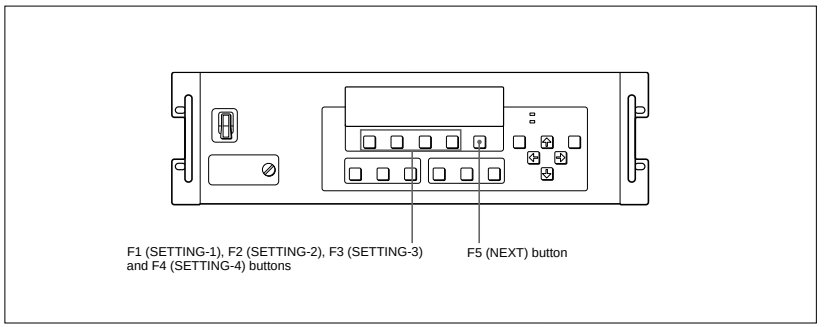
Press	To select
F1	Brightness level preset in PRESET 1
F2	Brightness level preset in PRESET 2
F3	Brightness level preset in PRESET 3
F4	Brightness level preset in PRESET 4

To change the preset brightness levels

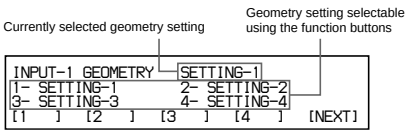
See “Adjusting and presetting the brightness” on page 25.

Selecting the picture size/shift on the screen

When you display the INPUT-1 images, you can set the picture size/shift (position) instantly by recalling one of the four preset geometry settings.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the INPUT-1 GEOMETRY display appears.
The currently selected geometry setting (SETTING) and the settings which you can select using the function buttons are shown on the display.


Currently selected geometry setting
Geometry setting selectable using the function buttons
INPUT-1 GEOMETRY SETTING-1
1- SETTING-1 2- SETTING-2
3- SETTING-3 4- SETTING-4
[1] [2] [3] [4] [NEXT]

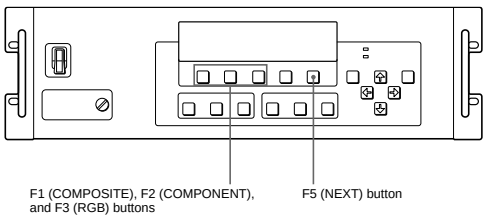
2 Press the F1, F2, F3 or F4 button to select the geometry setting on which the desired picture size/shift is preset.

Press	To select
F1	Picture size/shift preset on SETTING-1
F2	Picture size/shift preset on SETTING-2
F3	Picture size/shift preset on SETTING-3
F4	Picture size/shift preset on SETTING-4

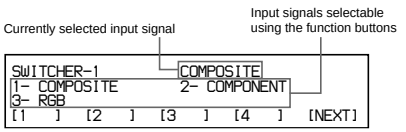
To change the preset picture size/shift values
Consult with qualified Sony service personnel.

Setting the type of the video input signal

Select the type of the video signal to be input from the VCR, video camera or other image output equipment.



1 When the display window shows the normal display, press the F5 (NEXT) button repeatedly until the SWITCHER-1 display appears.
The currently selected input signal and the input signals which you can select using the function buttons are shown on the display.


Currently selected input signal
Input signals selectable using the function buttons
SWITCHER-1 COMPOSITE
1- COMPOSITE 2- COMPONENT
3- RGB
[1] [2] [3] [4] [NEXT]

2 Press the F1, F2 or F3 button to select the type of the input signal.

Press	To select
F1	COMPOSITE (composite video) signal
F2	COMPONENT (component) signal
F3	RGB signal

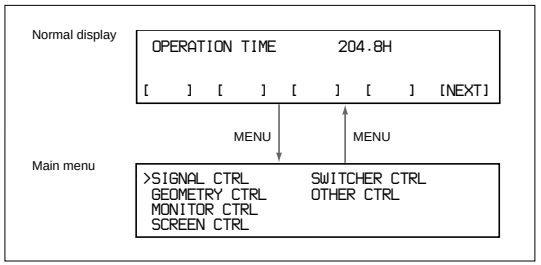
Menu Displays

In addition to the normal displays, this unit is provided with menu displays to be used for various adjustments.

Switching the normal display and the menu display

To change from the normal display to the menu display
When the display window shows the normal display, press the MENU button. The main menu appears.

To return to the normal display from the menu display
When the display window shows the main menu, press the MENU button.



Main menu items

The main menu items are used for the following adjustments.

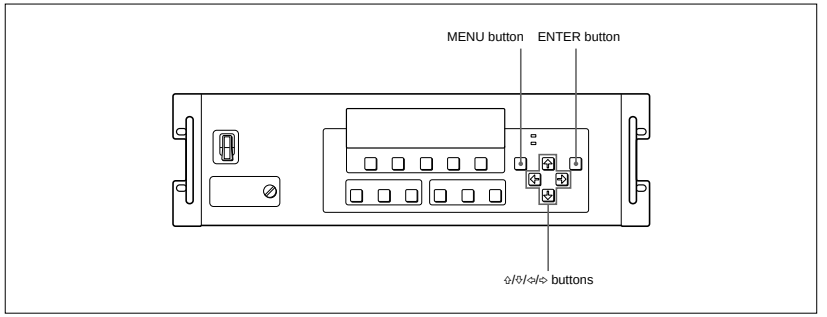
Item	Adjustment
SIGNAL CTRL*	Adjusts the signal.
GEOMETRY CTRL*	Adjusts the picture size and shift on the screen.
MONITOR CTRL*	Adjusts the video monitor connected to the ICU.
SCREEN CTRL*	Adjusts the picture quality on the screen. For details, see page 27.
SWITCHER CTRL*	Selects the signal to be adjusted.
OTHER CTRL*	Adjusts the screen brightness, etc. For the screen brightness adjustment, see page 23.

When you need to adjust the item marked with * , please consult with qualified Sony service personnel.

Adjusting the Brightness of the Screen

Adjusting the brightness

This section explains the basic brightness adjustment operations. The brightness of the screen can be adjusted by 16 levels.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL        SWITCHER CTRL
 GEOMETRY CTRL      OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to SCREEN CTRL (screen control), and press the ENTER button.
The SCREEN CTRL submenu appears.

```
>INFO
 BRIGHTNESS
 MIXLEVEL
 COLOR MATRIX
```

3 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ENTER button.
The BRIGHTNESS menu appears.

```
>BRIGHTNESS : 16
 AUTO BRIGHTNESS : OFF
```

4 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ⇦ or ⇨ button to adjust the brightness level.
The brightness level is adjustable in a range of 1 – 16. The higher the level is, the brighter the screen becomes.

Adjusted brightness level

```
>BRIGHTNESS : [14]
 AUTO BRIGHTNESS : OFF
```

Adjusting the Brightness of the Screen

5 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted brightness is stored in the memory.

6 To finish the brightness adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Note
After adjusting the brightness in step 4 above, do not press the MENU button before pressing the ENTER button. If you do, the adjusted brightness is not stored in the memory.

Adjusting the brightness automatically (Auto Brightness Control)

By using the optional JTA-LS200 ABC sensor unit, the JumboTron system is automatically adjusted to the proper brightness according to the ambient light.

1 Perform steps 1 to 3 of "Adjusting the brightness" on page 23 to display the BRIGHTNESS menu.

```
>BRIGHTNESS : 16
 AUTO BRIGHTNESS : OFF
```

2 Press the ⇩ or ⇧ button to select AUTO BRIGHTNESS, and press the ⇦ or ⇨ button to display ON.

Display ON.

```
 BRIGHTNESS : 16
>AUTO BRIGHTNESS : ON
```

3 Press the ENTER button.
"SAVE" is displayed for about one second, and the setting is stored in the memory.
The Auto Brightness Control function is now activated.

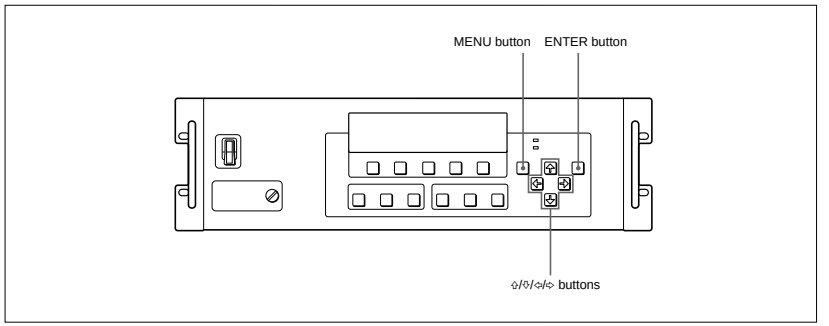
4 To finish the setting, press the MENU button repeatedly until the normal display appears in the display window.

If the ABC sensor unit is not connected correctly
The Auto Brightness Control does not function correctly even if AUTO BRIGHTNESS is set to ON. Check the connection of the ABC sensor unit.

To cancel the Auto Brightness Control function
Repeat the steps above, and set AUTO BRIGHTNESS to OFF in step 2.

Adjusting and presetting the brightness

You can preset up to four brightness levels for the images you display frequently. The preset brightness levels can be recalled at a touch.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL       SWITCHER CTRL
 GEOMETRY CTRL     OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to OTHER CTRL (other control), and press the ENTER button.
The SETTING/SERVICE select menu appears.

```
>SETTING
 SERVICE
```

3 Press the ⇩ or ⇧ button to select SETTING, and press the ENTER button.
The SETTING submenu appears.

```
>SCREEN
 LUMINANCE SENSOR
 UTILITY
 PRESET
```

(continued)

Adjusting the Brightness of the Screen

4 Press the ⇩ or ⇧ button to select PRESET, and press the ENTER button.
The preset menu appears.

```
>BRIGHTNESS
 GEOMETRY
```

5 Press the ⇩ or ⇧ button to select BRIGHTNESS, and press the ENTER button.
The brightness preset menu appears.

```
>PRESET-1 :  1
 PRESET-2 :  4
 PRESET-3 :  8
 PRESET-4 : 16
```

6 Press the ⇩ or ⇧ button to select the preset number, and press the ⇦ or ⇨ button to adjust the brightness level.
The brightness level is adjustable in a range of 1 – 16. The higher the level is, the brighter the screen becomes.

Adjusted brightness level

```
 PRESET-1 :  1
>PRESET-2 :  6
 PRESET-3 :  8
 PRESET-4 : 16
```

7 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted level is stored in the memory.

Repeat steps **6** and **7** to store up to four different brightness levels in the PRESET 1 to PRESET 4 numbers.

8 To finish the brightness adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Note

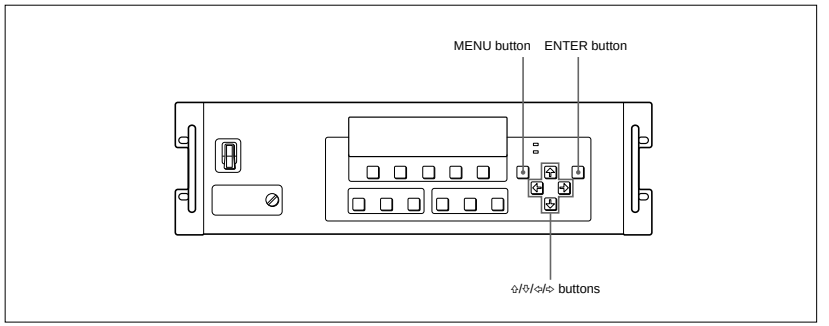
After adjusting the brightness in step **6** above, do not move the cursor to another preset number or press the MENU button before pressing the ENTER button. If you do, the adjusted level is not stored in the memory.

To set to the preset brightness level

See "Selecting the brightness of the screen" on page 19.

Adjusting the Picture on the Screen

When the composite video signal is displayed on the screen, you can adjust the color, hue and sharpness of the picture.
When the component video signal is displayed, you can adjust the color and sharpness only.



1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL       SWITCHER CTRL
 GEOMETRY CTRL     OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇩ or ⇧ button to move the cursor (>) to SIGNAL CTRL (signal control), and press the ENTER button.
The SIGNAL CTRL submenu appears.

```
>INPUT-1  INFO       INPUT-2  INFO
 INPUT-1  PICTURE    INPUT-2  OTHER
 INPUT-1  OTHER
```

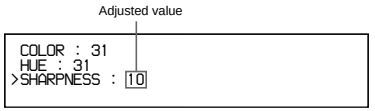
3 Press the ⇩ or ⇧ button to select INPUT-1 PICTURE, and press the ENTER button.
The picture adjustment menu appears.

```
>COLOR : 31
 HUE : 31
 SHARPNESS :  7
```

(continued)

Adjusting the Picture on the Screen

4 Press the ⇳ or ⇳ button to select the item you want to adjust, and press the ⇦ or ⇨ button to adjust it.



Adjustment item	How to adjust
COLOR	Pressing the ⇨ button increases the color intensity; pressing the ⇦ button decreases the color intensity. Adjustable range is 0 – 63.
HUE	Pressing the ⇨ button makes the skin tones greener; pressing the ⇦ button makes the skin tones purpler. Adjustable range is 0 – 63.
SHARPNESS	Pressing the ⇨ button makes the picture sharper; pressing the ⇦ button makes the picture softer. Adjustable range is 0 – 15.

5 Press the ENTER button.
"SAVE" is displayed for about one second, and the adjusted level is stored in the memory.

Repeat steps **4** and **5** to adjust each item.

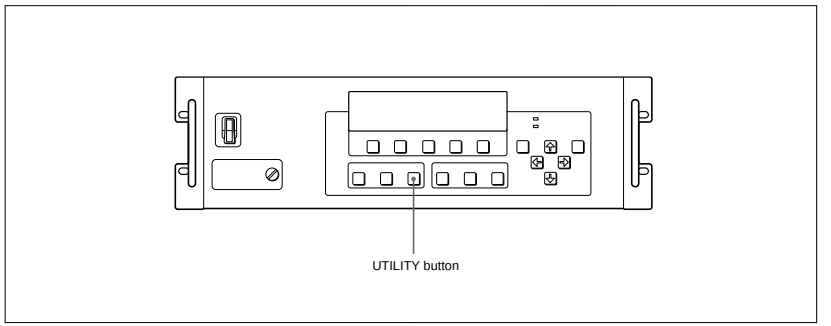
6 To finish the adjustment, press the MENU button repeatedly until the normal display appears in the display window.

Notes

- After adjusting the picture in step **4** above, do not move the cursor to another item or press the MENU button before pressing the ENTER button. If you do, the adjusted level is not stored in the memory.
- The hue cannot be adjusted for the picture input from PAL color sources. In this case, "HUE: – –" appears.

Controlling the Equipment Connected to the ICU

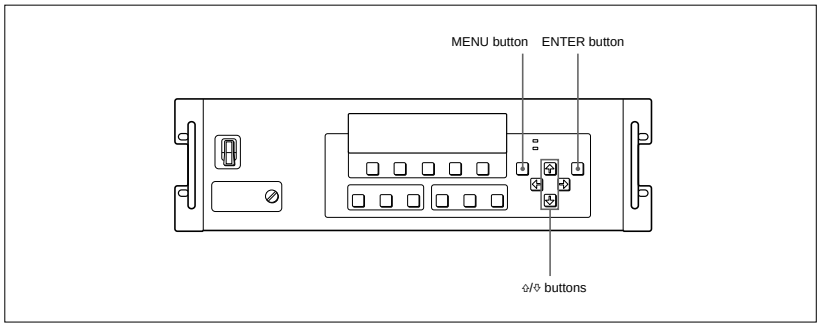
Using the UTILITY button on the ICU controller, you can control the power on/off or other functions of the equipment connected to the EXTERNAL CONTROL connector of the ICU.



Hold down the UTILITY button for more than a second to make contact. The UTILITY button lights.
Hold down the button again to break contact. The UTILITY button goes out.

Getting Information about the Input Signal

You can display information about the currently input video signal in the display window.



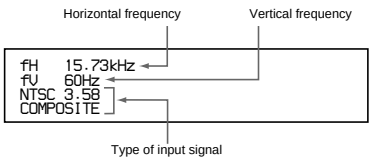
1 When the display window shows the normal display, press the MENU button.
The main menu appears.

```
>SIGNAL CTRL        SWITCHER CTRL
 GEOMETRY CTRL      OTHER CTRL
 MONITOR CTRL
 SCREEN CTRL
```

2 Press the ⇳ or ⇳ button to move the cursor (>) to SIGNAL CTRL (signal control), and press the ENTER button.
The SIGNAL CTRL submenu appears.

```
>INPUT-1  INFO        INPUT-2  INFO
 INPUT-1  PICTURE     INPUT-2  OTHER
 INPUT-1  OTHER
```

3 Press the ⇳ or ⇳ button to select INPUT-1 INFO, and press the ENTER button.
The information about the currently input signal appears.



4 To return to the normal display, press the MENU button repeatedly.

Troubleshooting

If you think you have a problem during operation, check through the following list.

Problem	Cause	Corrective action
The normal display does not appear in the display window of the ICU controller.	ICU is not turned on.	Press the POWER switch on the ICU to ON.
		Hold down the ICU button on the ICU controller for more than a second to turn on the light of the button.
No image is displayed on the screen.	Screen is not turned on.	Turn on the power distribution panel which supplies the power to the screen.
		Hold down the SCREEN button for more than a second to turn on the light of the button.
	The power of the image output equipment is turned off.	Turn it on.
	Image output equipment is not properly connected.	Check the connections.
A part of the image on the screen is not displayed.	A JumboTron display unit or cell is defective.	Consult with qualified Sony service personnel.
	The JumboTron display units are not connected properly.	Check the connection between the units and the ICU.

For the maintenance and adjustment of the JumboTron System, consult with qualified Sony service personnel.

Specifications

JTC-P200 ICU

General

Power requirements
AC 100 – 240 V, 50/60 Hz, 1.4 A
Power consumption
140 W (max.)
Dimensions 482 × 177 × 486 mm (w/h/d) (19 × 7 × 19 1/4 inches)
Mass Approx.15.8 kg (34 lb 13 oz)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)
Signal cable length 100 m (328 feet) max.

Input/output

Input
INPUT-1 Composite video input: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
Analog RGB/component inputs: BNC connector (5)
R/R-Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G/Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G with sync/Y: 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
B/B-Y: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
HD/COMP:
Composite sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
Horizontal sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
VD:
Vertical sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated

INPUT-2 Analog RGB inputs: BNC connector (5)
R: 0.7 Vp-p ± 2 dB, positive, 75 ohms, terminated
G: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
G with sync: 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
B: 0.7 Vp-p ± 2 dB, positive, 75 ohms terminated
HD/COMP:
Composite sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
Horizontal sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated
VD:
Vertical sync input: 1 – 3.5 Vp-p, sync positive/negative, 75 ohms terminated

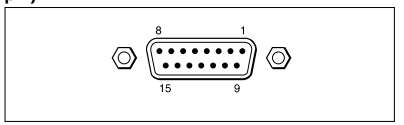
Output SIGNAL OUT: High-density D-sub 15-pin (48)
VIDEO OUT: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
MONITOR OUT: BNC connector (1), 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
Control CONTROL 1/LS, CONTROL 2, CONTROL 3, CONTROL 4: D-sub 15-pin for RS-422 (4)
EXTERNAL CONTROL: D-sub 15-pin (1)

Supplied accessories

Rail mounting bracket (4)
AC power cord (3)
Operation Guide (1)

Pin assignment

EXTERNAL CONTROL connector (D-sub 15-pin)



Pin No.	Signal	Pin No.	Signal
1	FRAME GROUND	9	JT POWER –
2	JT POWER +	10	UTILITY –
3	UTILITY +	11	Reserved 1 –
4	Reserved 1 +	12	Reserved 2 –
5	Reserved 2 +	13	Reserved 3 –
6	Reserved 3 +	14	Reserved 4 –
7	Reserved 4 +	15	Reserved 5 –
8	Reserved 5 +		

Design and specifications are subject to change without notice.

JTC-C200 ICU controller

General

Power requirements
AC 100 – 240 V, 50/60 Hz, 0.13 A
Power consumption
13 W (max.)
Dimensions 481 × 132.4 × 228 mm (w/h/d) (19 × 5 1/4 × 9 inches)
Mass Approx. 5 kg (11 lb)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)

Input/output

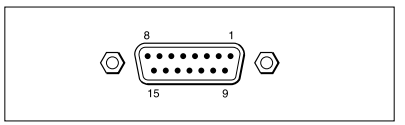
Control CONTROL 1, CONTROL 2: D-sub 15-pin for RS-422 (2)
EXTERNAL CONTROL: D-sub 15-pin (1)
COM 1, COM 2: D-sub 9-pin (2)

Supplied accessories

AC power cord (3)
Operating Instructions (1)

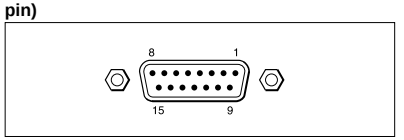
Pin assignment

CONTROL 1 and CONTROL 2 connectors (D-sub 15-pin)



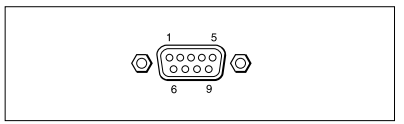
Pin No.	Signal	Pin No.	Signal
1	GND	9	TXD –
2	TXD +	10	RTS –
3	RTS +	11	RXD –
4	RXD +	12	CTS –
5	CTS +	13	DSR –
6	DSR +	14	DTR –
7	DTR +	15	Not used
8	GND		

EXTERNAL CONTROL connector (D-sub 15-pin)



Pin No.	Signal	Pin No.	Signal
1	Reserved	9	ICU POWER
2	ICU POWER	10	Reserved
3	Reserved	11	ICU POWER SENSE –
4	ICU POWER SENSE +	12	Reserved
5	Reserved	13	Reserved
6	Reserved	14	Reserved
7	Reserved	15	Reserved
8	Reserved		

COM 1 and COM 2 connectors (D-sub 9-pin)



Pin No.	Signal
1	$\overline{\text{DCD}}$
2	$\overline{\text{RXD}}$
3	$\overline{\text{TXD}}$
4	$\overline{\text{DTR}}$
5	GND
6	$\overline{\text{DSR}}$
7	$\overline{\text{RTS}}$
8	$\overline{\text{CTS}}$
9	$\overline{\text{RI}}$

Design and specifications are subject to change without notice.

JTA-LS200 ABC sensor unit

General

Power requirements
12 V DC (supplied from the JTC-P200)
Power consumption
1.0 W (max.)
Dimensions $80 \times 125 \times 56.5$ mm (w/h/d) ($3\ ^1/_4 \times 5 \times 2\ ^1/_4$ inches)
Mass Approx. 0.6 kg (1 lb 5 oz)
Operating conditions
Temperature: 0°C to 45°C (32°F to 113°F)
Humidity: 30% to 70% (no condensation)

Input/output

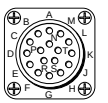
Input/output 17-pin, Round type (2)

Supplied accessories

Mounting bracket (1 set)
Operation Guide (1)

Pin assignment

OUT and IN connectors (17-pin, round type)

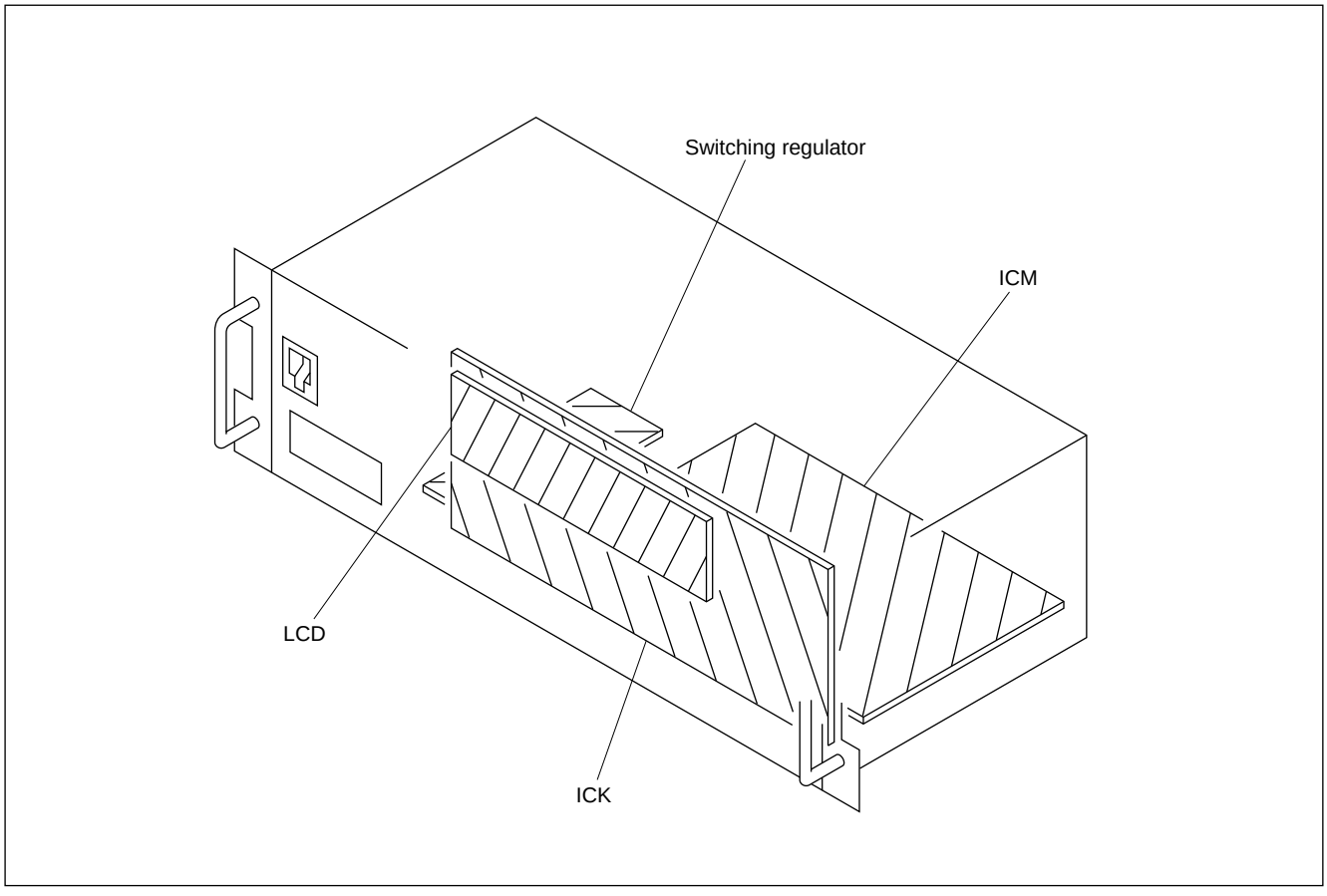


Pin No.	Signal	Pin No.	Signal
A	FRAME GROUND	K	RTS –
B	TXD +	L	RXD –
C	RTS +	M	CTS –
D	RXD +	N	DSR –
E	CTS +	P	DTR –
F	DSR +	R	12 V DC
G	DTR +	S	S1-3
H	SIGNAL GROUND	T	S1-2
J	TXD –		

Design and specifications are subject to change without notice.

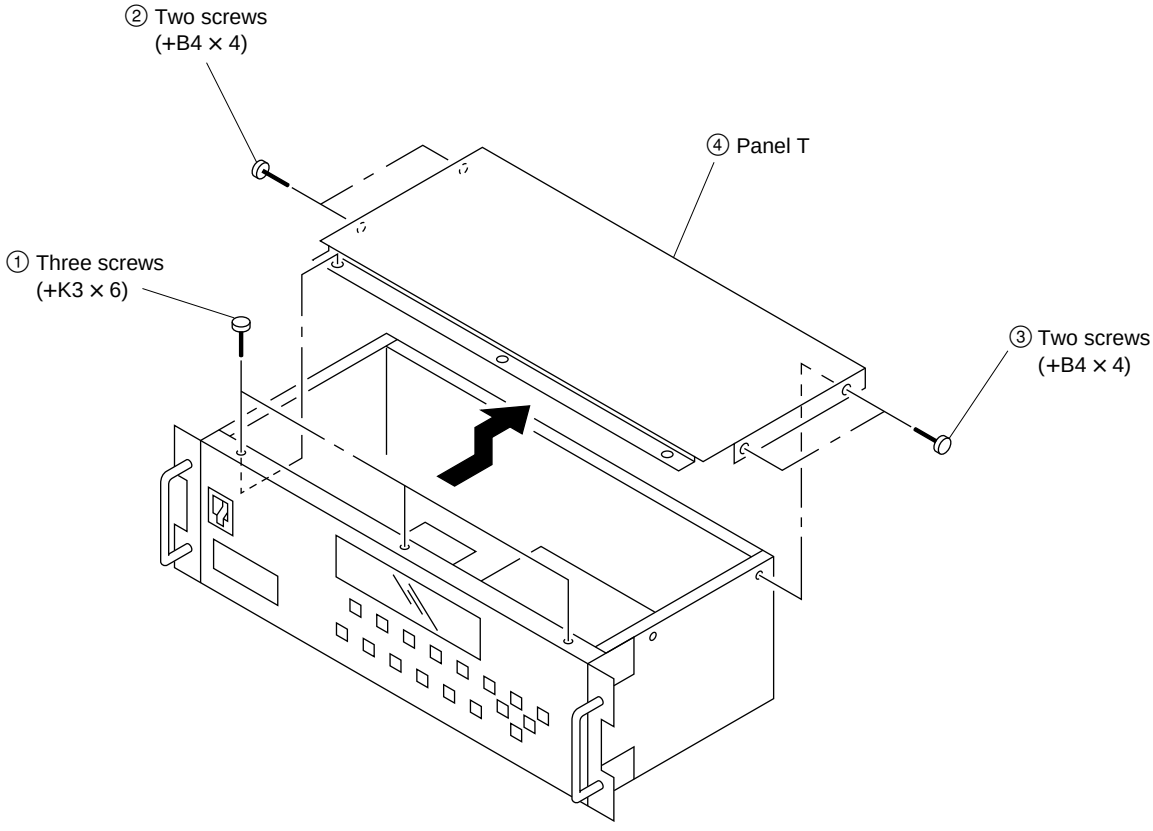
SECTION 2
SERVICE INFORMATIONS

2-1. CIRCUIT BOARDS LOCATION

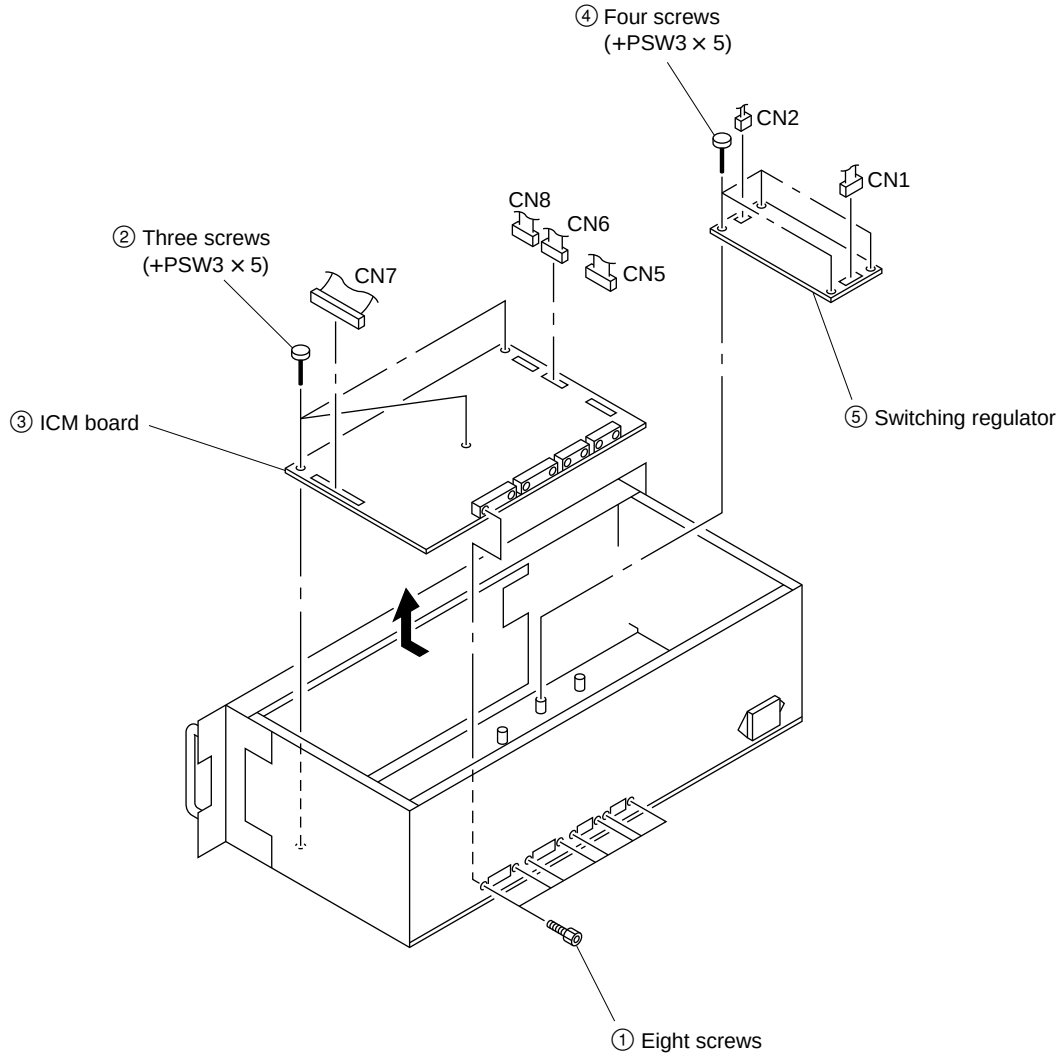


2-2. DISASSEMBLY

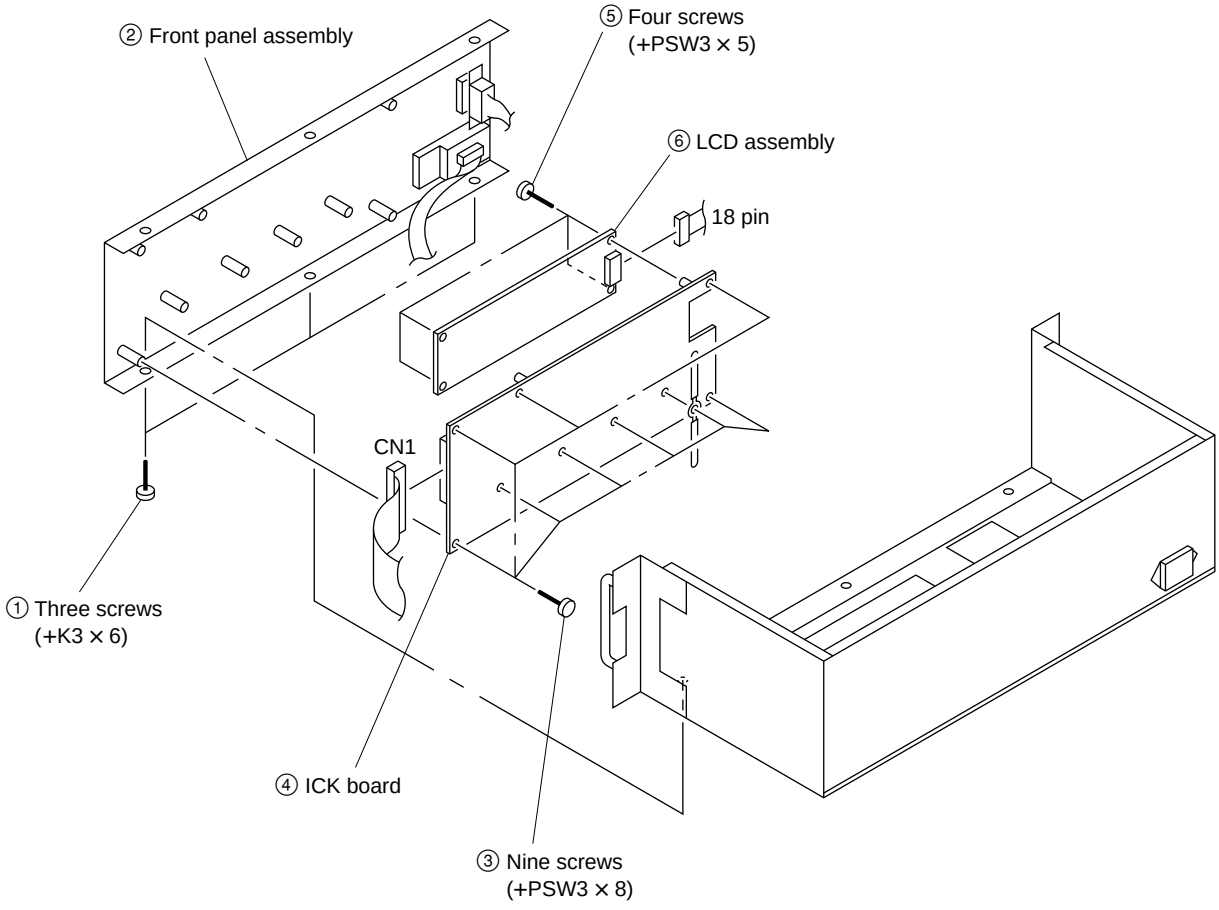
2-2-1. Panel T Removal



2-2-2. ICM Board and Switching Regulator Removal



2-2-3. ICK Board and LCD Assembly Removal



SECTION 3
CIRCUIT DESCRIPTIONS

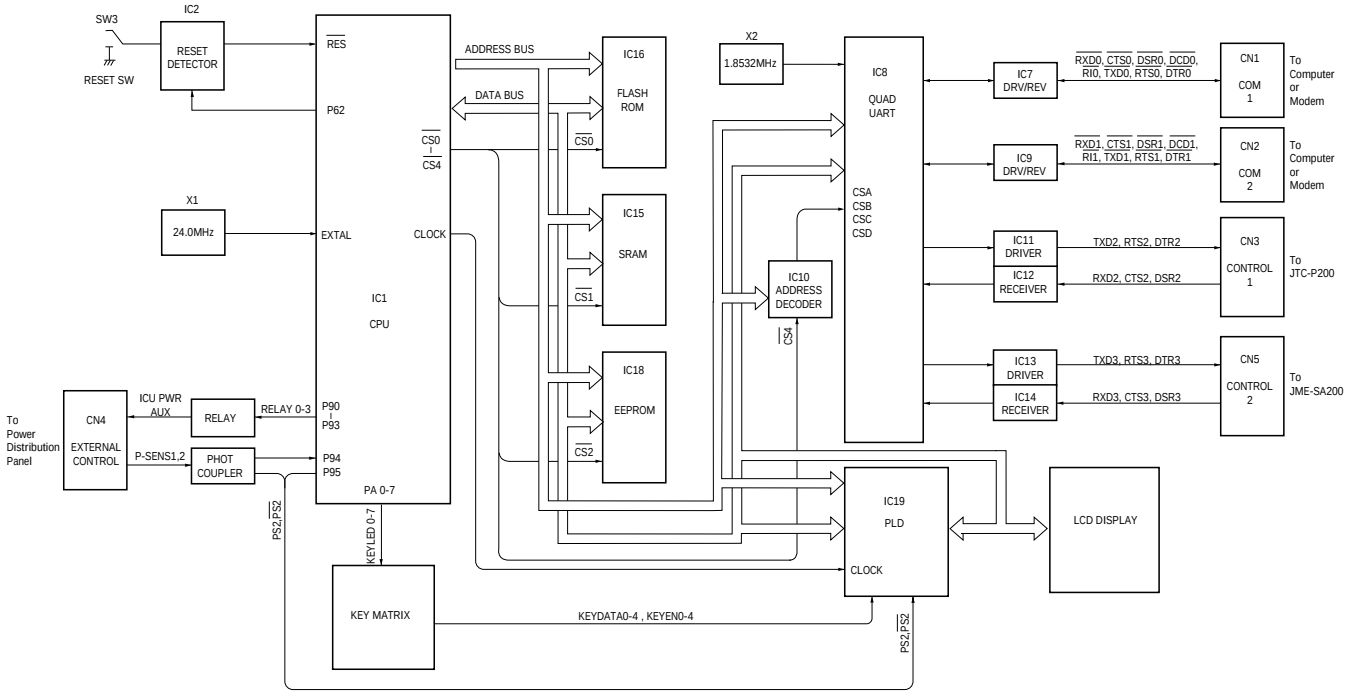


Fig 1. Block Diagram

3-1. DESCRIPTION OF JTC-C200

The JTC-C200 main components are as follows.

- CPU (IC1) : Control processor
- FLASH ROM (IC16) : Writing control programs
- SRAM (IC15) : Work area for CPU
- LCD : Operating status display panel
- QUAD UART (IC8) : Serial communication I/O
- EEPROM (IC18) : Storing brightness information by presetting

Also, the following areas have been mapped in the CPU (IC1).

- ROM (FLASH)
- SRAM
- LCD
- UART × 4
- EEPROM

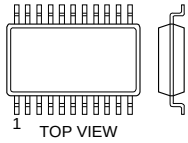
JTC-C200 provides four communication ports; [CONTROL 1] and [CONTROL 2] are RS422 (D-sub 15 pin) terminals used for communication with JTC-P200 and other peripheral equipment, and [COM 1] and [COM 2] are RS232C (D-sub 9 pin) terminals used for communication with a computer and modem.

As a system composition where the JTC-C200 and JTC-P200 are connected ,when both powers are turned on, a communication between JTC-C200 and JTC-P200 starts automatically, and the LCD panel display changes from initial screen to normal screen.
Under this condition, normal operation is possible.

The CPU (IC1) scans the keyboard at certain interval to judge the status of a key pressed. After judging the pressed key, it transmits the information to the JTC-P200 through communication protocol in order to allow operation that corresponds to that key. Also, it displays the information according to that status on the LCD panel, and turns on or off the key switch LED as necessary.
[COM 1] and [COM 2] terminals can send the operation information to the computer and modem through the communication protocol in the same manner.
Further, this set has a relay circuit assigned to the [EXTERNAL CONTROL] terminal, and it can turn on/off the circuits such as a distribution board connected to this terminal.

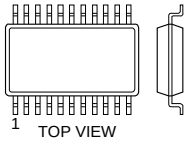
SECTION 4
SEMICONDUCTORS

AM29F400BB-70SC



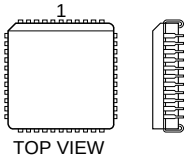
44pin SOP

DS26C31TM
DS26C31TMX
DS26C32ATM
DS26C32ATMX
TC74AC139F



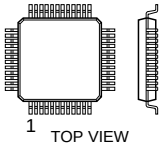
16pin SOP

EPM7064LC68-15
ST16C654CJ68



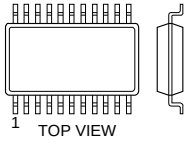
68pin QFJ

HD6413003RF-12



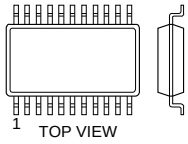
112pin QFP

HM628512ALFP-7



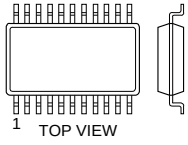
32pin SOP

MAX211CAI-TE2



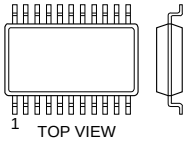
28pin SOP

MAX706CSA



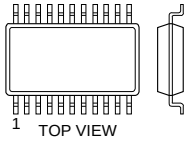
8pin SOP

SN74HC245ANS



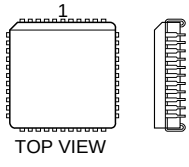
20pin SOP

SN7406NS
SN74HC04ANS



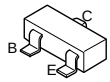
14pin SOP

X28HC256J-70

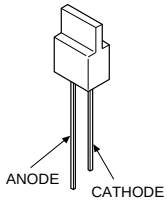


32pin QFJ

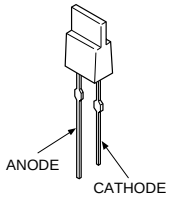
DTC114WKA-T146



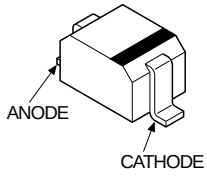
TLO205



TLY205



1SS355
1SS355TE-17



SECTION 5
EXPLODED VIEWS

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified ⚠ marked are critical for safety.
Replace only with the part number specified.

Les composants identifiés par la marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

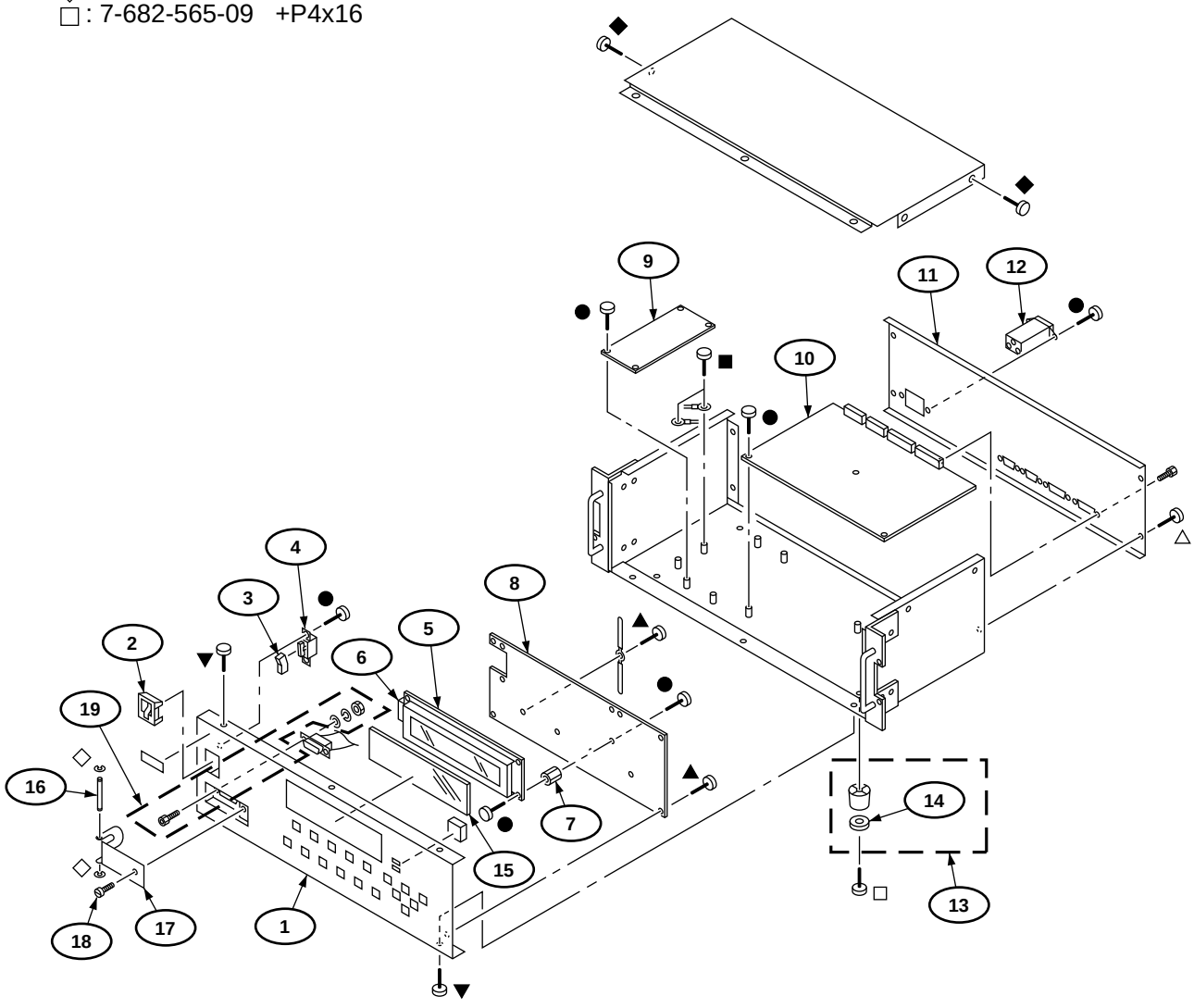
【使用上の注意】

- * 印の部品は常時在庫しておりません。
  受注して供給できるまで日数を要します。
- 分解図中の構成部品で，図面番号のない部品は供給しません。
- 組立部品の構成部品は備考欄に図面番号で示します。

⚠印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

5-1. CHASSIS

● : 7-682-946-09 +PSW3x5
▲ : 7-682-948-01 +PSW3x8
▼ : 7-682-247-04 +K3x6
■ : 7-682-961-01 +PSW4x8
◆ : 7-682-558-04 +B4x4
△ : 7-682-558-09 +B4x4
◇ : 7-624-102-04 STOP RING 1.5, TYPE-E
□ : 7-682-565-09 +P4x16



Rf.No.	Part No.	Description	Remark
1	*4-065-568-01	PANEL (F) (A)	
2	3-681-054-11	POWER SW GUARD	
3	3-688-814-31	CAP, SWITCH	
4	⚠1-570-117-51	SWITCH, SEESAW (AC POWER)	
5	A-1501-337-A	LCD ASSY	6
6	*1-506-624-11	CONNECTOR, PS 18P	
7	*4-065-562-01	SPACER	
8	*A-1390-853-A	ICK BOARD, MOUNT	
9	⚠1-468-326-11	SWITCHING REGULATOR	
10	*A-1394-908-A	ICM BOARD, COMPLETE	
11	*4-065-565-01	PANEL (R)	
12	⚠1-251-148-11	INLET, AC (WITH FILTER)	
13	X-4838-902-9	FOOT ASSY, 18MF	14
14	4-809-913-02	FOOT, F	
15	*4-065-564-01	COVER, LCD	
16	*4-066-635-01	PIN	
17	*4-066-633-02	PANEL F (C)	
18	*4-065-988-01	KNOB,KNURL	
19	3-177-691-01	HEXAGONAL BLOCK	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified ⚠ marked are critical for safety.
Replace only with the part number specified.

Les composants identifiés par la marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable
- CAPACITORS
  PF : μμ F
- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

【使用上の注意】

⚠印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

お願い
図面番号で部品を指定するときは，基板名又はブロックを併せて指定して下さい。

- 抵抗の単位Ωは省略してあります。
  酸金被膜：酸化金属被膜抵抗。
  金属被膜：金属被膜抵抗。
  参考欄のFは不燃性抵抗を示します。
- * 印の部品は常時在庫しておりません。
- ここに記載されている部品は，補修部品であるため，回路図及びセットについている部品と異なる場合があります。
- 基板どうしでリファレンスNo.が重複している場合がありますので発注の際には必ず基板名を明記して下さい。

Rf.NO.	PART NO.	DESCRIPTION			REMARK
	* A-1390-853-A	ICK BOARD, MOUNT			
		**********			
		<CAPACITOR>			
C1	1-126-382-11	ELECT	100MF	20% 16V	
		<CONNECTOR>			
CN1	1-564-410-11	HEADER, CONNECTOR 40P			
CN2	1-564-517-11	PLUG, CONNECTOR 2P			
		<DIODE>			
D1	8-719-058-09	DIODE TLO205 (INFORMATION)			
D2	8-719-820-50	DIODE TLY205 (REMOTE)			
		<RESISTOR>			
R1	1-249-407-11	CARBON	150	5% 1/4W F	
R2	1-249-407-11	CARBON	150	5% 1/4W F	
R3	1-249-407-11	CARBON	150	5% 1/4W F	
R4	1-249-407-11	CARBON	150	5% 1/4W F	
R5	1-249-407-11	CARBON	150	5% 1/4W F	
R6	1-249-407-11	CARBON	150	5% 1/4W F	
R7	1-249-412-11	CARBON	390	5% 1/4W F	
R8	1-249-412-11	CARBON	390	5% 1/4W F	
R9	1-249-412-11	CARBON	390	5% 1/4W F	
		<SWITCH>			
S1	1-692-890-11	SWITCH, TACTILE (IC POWER)			
S2	1-692-890-11	SWITCH, TACTILE (JT POWER)			
S3	1-692-890-11	SWITCH, TACTILE (UTILITY)			
S4	1-692-890-11	SWITCH, TACTILE (VIDEO)			
S5	1-692-890-11	SWITCH, TACTILE (CG)			
S6	1-692-890-11	SWITCH, TACTILE (MIX)			
S7	1-692-890-11	SWITCH, TACTILE (F1)			
S8	1-692-890-11	SWITCH, TACTILE (F2)			
S9	1-692-890-11	SWITCH, TACTILE (F3)			
S10	1-692-890-11	SWITCH, TACTILE (F4)			
S11	1-692-890-11	SWITCH, TACTILE (F5)			
S12	1-692-890-61	SWITCH, TACTILE (UP)			
S13	1-692-890-61	SWITCH, TACTILE (LEFT)			
S14	1-692-890-61	SWITCH, TACTILE (DOWN)			
S15	1-692-890-61	SWITCH, TACTILE (RIGHT)			
S16	1-692-890-11	SWITCH, TACTILE (MENU)			
S17	1-692-890-11	SWITCH, TACTILE (ENTER)			
		**********			
	* A-1394-908-A	ICM BOARD, COMPLETE			
		**********			
	* 3-709-100-01	COVER, IC SOCKET			
		<CAPACITOR>			
C1	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C2	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C3	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C4	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C5	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C6	1-128-499-11	ELECT	220MF	20% 16V	
C7	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C8	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	
C9	1-164-004-11	CERAMIC CHIP 0.1MF		10% 25V	

ICM

Rf.NO.	PART NO.	DESCRIPTION			REMARK
C10	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C11	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C12	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C13	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C14	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C15	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C16	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C17	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C18	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C19	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C20	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C21	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C22	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C23	1-126-187-11	ELECT CHIP 0.1MF	20%	50V	
C24	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C25	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C26	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C27	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C28	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C29	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C30	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C31	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C32	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C33	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C34	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C35	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C36	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V	
C37	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C38	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C39	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C40	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
C41	1-164-222-11	CERAMIC CHIP 0.22MF		25V	
		<CONNECTOR>			
CN1	* 1-565-388-11	CONNECTOR, D-SUB 9P			
CN2	* 1-565-388-11	CONNECTOR, D-SUB 9P			
CN3	1-569-712-11	CONNECTOR, D-SUB 15P			
CN4	1-569-712-11	CONNECTOR, D-SUB 15P			
CN5	* 1-506-697-11	HEADER 16P			
CN6	* 1-506-638-11	CONNECTOR, PS 18P			
CN7	* 1-566-343-11	HEADER, CONNECTOR 40P			
CN8	* 1-564-243-11	PIN, CONNECTOR 6P			
CN9	* 1-506-501-11	HEADER, CONNECTOR 20P			
CN10	* 1-506-501-11	HEADER, CONNECTOR 20P			
CN11	* 1-506-501-11	HEADER, CONNECTOR 20P			
		<DIODE>			
D1	8-719-988-62	DIODE 1SS355			
D2	8-719-988-62	DIODE 1SS355			
D3	8-719-988-62	DIODE 1SS355			
D4	8-719-988-62	DIODE 1SS355			
D5	8-719-988-62	DIODE 1SS355			
D6	8-719-988-62	DIODE 1SS355			
D7	8-719-988-62	DIODE 1SS355			
D8	8-719-988-62	DIODE 1SS355			
D9	8-719-988-62	DIODE 1SS355			

Rf.NO.	PART NO.	DESCRIPTION	REMARK
		<FERRITE BEAD>	
FB1	1-412-390-21	FERRITE 0UH	
FB2	1-412-390-21	FERRITE 0UH	
FB3	1-412-390-21	FERRITE 0UH	
FB4	1-412-390-21	FERRITE 0UH	
FB5	1-412-390-21	FERRITE 0UH	
FB6	1-412-390-21	FERRITE 0UH	
FB7	1-412-390-21	FERRITE 0UH	
FB8	1-412-390-21	FERRITE 0UH	
FB9	1-412-390-21	FERRITE 0UH	
FB10	1-412-390-21	FERRITE 0UH	
FB11	1-412-390-21	FERRITE 0UH	
FB12	1-412-390-21	FERRITE 0UH	
FB13	1-412-390-21	FERRITE 0UH	
FB14	1-412-390-21	FERRITE 0UH	
FB15	1-412-390-21	FERRITE 0UH	
FB16	1-412-390-21	FERRITE 0UH	
FB17	1-412-390-21	FERRITE 0UH	
FB18	1-412-390-21	FERRITE 0UH	
FB19	1-412-390-21	FERRITE 0UH	
FB20	1-412-390-21	FERRITE 0UH	
FB21	1-412-390-21	FERRITE 0UH	
FB22	1-412-390-21	FERRITE 0UH	
FB23	1-412-390-21	FERRITE 0UH	
FB24	1-412-390-21	FERRITE 0UH	
FB25	1-412-390-21	FERRITE 0UH	
FB26	1-412-390-21	FERRITE 0UH	
		<FILTER>	
FL1	1-239-899-21	FILTER, CHIP EMI	
FL2	1-239-899-21	FILTER, CHIP EMI	
FL3	1-239-899-21	FILTER, CHIP EMI	
FL4	1-239-899-21	FILTER, CHIP EMI	
FL5	1-239-899-21	FILTER, CHIP EMI	
FL6	1-239-899-21	FILTER, CHIP EMI	
FL7	1-239-899-21	FILTER, CHIP EMI	
FL8	1-239-899-21	FILTER, CHIP EMI	
FL9	1-233-286-21	FILTER, EMI (SMD)	
FL10	1-233-286-21	FILTER, EMI (SMD)	
FL11	1-233-286-21	FILTER, EMI (SMD)	
FL12	1-233-286-21	FILTER, EMI (SMD)	
FL13	1-233-286-21	FILTER, EMI (SMD)	
FL14	1-233-286-21	FILTER, EMI (SMD)	
FL15	1-233-286-21	FILTER, EMI (SMD)	
FL16	1-233-286-21	FILTER, EMI (SMD)	
FL17	1-233-286-21	FILTER, EMI (SMD)	
FL18	1-233-286-21	FILTER, EMI (SMD)	
FL19	1-233-286-21	FILTER, EMI (SMD)	
FL20	1-233-286-21	FILTER, EMI (SMD)	
FL21	1-233-286-21	FILTER, EMI (SMD)	
FL22	1-233-286-21	FILTER, EMI (SMD)	
FL23	1-233-286-21	FILTER, EMI (SMD)	
FL24	1-233-286-21	FILTER, EMI (SMD)	
FL25	1-233-283-11	FILTER, EMI (SMD)	
FL26	1-233-283-11	FILTER, EMI (SMD)	
FL27	1-233-283-11	FILTER, EMI (SMD)	
FL28	1-233-283-11	FILTER, EMI (SMD)	
FL29	1-233-283-11	FILTER, EMI (SMD)	
FL30	1-233-283-11	FILTER, EMI (SMD)	

Rf.NO.	PART NO.	DESCRIPTION	REMARK
FL31	1-233-283-11	FILTER, EMI (SMD)	
FL32	1-233-283-11	FILTER, EMI (SMD)	
FL33	1-233-283-11	FILTER, EMI (SMD)	
FL34	1-233-283-11	FILTER, EMI (SMD)	
FL35	1-239-464-11	EMIFIL ARRAY, CHIP	
FL36	1-239-464-11	EMIFIL ARRAY, CHIP	
FL37	1-233-283-11	FILTER, EMI (SMD)	
FL38	1-233-283-11	FILTER, EMI (SMD)	
FL39	1-233-283-11	FILTER, EMI (SMD)	
FL40	1-233-283-11	FILTER, EMI (SMD)	
FL41	1-233-283-11	FILTER, EMI (SMD)	
FL42	1-233-283-11	FILTER, EMI (SMD)	
FL43	1-233-283-11	FILTER, EMI (SMD)	
FL44	1-233-283-11	FILTER, EMI (SMD)	
FL45	1-233-283-11	FILTER, EMI (SMD)	
FL46	1-233-283-11	FILTER, EMI (SMD)	
FL47	1-233-283-11	FILTER, EMI (SMD)	
FL48	1-239-899-21	FILTER, CHIP EMI	
FL49	1-239-899-21	FILTER, CHIP EMI	
FL50	1-239-899-21	FILTER, CHIP EMI	
FL51	1-233-283-11	FILTER, EMI (SMD)	
FL52	1-239-899-21	FILTER, CHIP EMI	
FL53	1-239-899-21	FILTER, CHIP EMI	
		<IC>	
IC1	8-759-275-96	IC HD6413003RF-12	
IC2	8-759-447-40	IC MAX706CSA	
IC3	8-759-987-84	IC SN7406NS	
IC4	8-759-987-84	IC SN7406NS	
IC5	8-759-987-84	IC SN7406NS	
IC6	8-759-925-74	IC SN74HC04ANS	
IC7	8-759-297-98	IC MAX211CAI-TE2	
IC8	8-759-534-39	IC ST16C654CJ68	
IC9	8-759-297-98	IC MAX211CAI-TE2	
IC10	8-759-243-78	IC TC74AC139F	
IC11	8-759-271-77	IC DS26C31TM	
IC12	8-759-271-78	IC DS26C32ATM	
IC13	8-759-271-77	IC DS26C31TM	
IC14	8-759-271-78	IC DS26C32ATM	
IC15	8-759-544-66	IC HM628512ALFP-7	
IC16	8-759-534-38	IC AM29F400BB-70SC	
IC18	8-759-535-15	IC X28HC256J-70	
IC20	8-759-232-94	IC TC74HC245AF	
		<IC SOCKET>	
IS16	* 1-251-496-21	SOCKET, IC	
IS17	1-251-047-11	SOCKET, IC	
IS18	1-540-151-11	SOCKET, IC	
IS19	* 1-251-731-11	SOCKET, IC 68P	
		<COIL>	
L1	1-410-204-31	INDUCTOR CHIP 10UH	
		<PHOTO COUPLER>	
PC1	8-749-010-64	PHOTO COUPLER PC123F2	
PC2	8-749-010-64	PHOTO COUPLER PC123F2	

Rf.NO.	PART NO.	DESCRIPTION			REMARK
		<TRANSISTOR>			
Q1	8-729-027-45	TRANSISTOR DTC114WKA-T146			
Q2	8-729-027-45	TRANSISTOR DTC114WKA-T146			
Q3	8-729-027-45	TRANSISTOR DTC114WKA-T146			
Q4	8-729-027-45	TRANSISTOR DTC114WKA-T146			
		<RESISTOR>			
R1	1-216-073-00	RES,CHIP	10K	5%	1/10W
R2	1-216-073-00	RES,CHIP	10K	5%	1/10W
R3	1-216-073-00	RES,CHIP	10K	5%	1/10W
R4	1-216-073-00	RES,CHIP	10K	5%	1/10W
R5	1-216-073-00	RES,CHIP	10K	5%	1/10W
R6	1-216-073-00	RES,CHIP	10K	5%	1/10W
R7	1-216-089-91	RES,CHIP	47K	5%	1/10W
R8	1-216-089-91	RES,CHIP	47K	5%	1/10W
R9	1-216-089-91	RES,CHIP	47K	5%	1/10W
R10	1-216-089-91	RES,CHIP	47K	5%	1/10W
R11	1-216-089-91	RES,CHIP	47K	5%	1/10W
R12	1-216-089-91	RES,CHIP	47K	5%	1/10W
R13	1-216-089-91	RES,CHIP	47K	5%	1/10W
R14	1-216-089-91	RES,CHIP	47K	5%	1/10W
R15	1-216-089-91	RES,CHIP	47K	5%	1/10W
R16	1-216-089-91	RES,CHIP	47K	5%	1/10W
R17	1-216-089-91	RES,CHIP	47K	5%	1/10W
R18	1-216-089-91	RES,CHIP	47K	5%	1/10W
R19	1-216-089-91	RES,CHIP	47K	5%	1/10W
R20	1-216-089-91	RES,CHIP	47K	5%	1/10W
R21	1-216-089-91	RES,CHIP	47K	5%	1/10W
R22	1-216-089-91	RES,CHIP	47K	5%	1/10W
R23	1-216-089-91	RES,CHIP	47K	5%	1/10W
R24	1-216-089-91	RES,CHIP	47K	5%	1/10W
R25	1-216-025-91	RES,CHIP	100	5%	1/10W
R26	1-216-073-00	RES,CHIP	10K	5%	1/10W
R27	1-216-073-00	RES,CHIP	10K	5%	1/10W
R28	1-216-073-00	RES,CHIP	10K	5%	1/10W
R29	1-216-073-00	RES,CHIP	10K	5%	1/10W
R30	1-216-025-91	RES,CHIP	100	5%	1/10W
R31	1-216-073-00	RES,CHIP	10K	5%	1/10W
R32	1-216-295-91	SHORT	0		
R33	1-216-025-91	RES,CHIP	100	5%	1/10W
R34	1-216-073-00	RES,CHIP	10K	5%	1/10W
R35	1-216-073-00	RES,CHIP	10K	5%	1/10W
R36	1-216-295-91	SHORT	0		
R37	1-216-089-91	RES,CHIP	47K	5%	1/10W
R38	1-216-089-91	RES,CHIP	47K	5%	1/10W
R39	1-216-089-91	RES,CHIP	47K	5%	1/10W
R40	1-216-089-91	RES,CHIP	47K	5%	1/10W
R41	1-216-089-91	RES,CHIP	47K	5%	1/10W
R42	1-216-089-91	RES,CHIP	47K	5%	1/10W
R43	1-216-089-91	RES,CHIP	47K	5%	1/10W
R44	1-216-089-91	RES,CHIP	47K	5%	1/10W
R45	1-216-089-91	RES,CHIP	47K	5%	1/10W
R46	1-216-089-91	RES,CHIP	47K	5%	1/10W
R47	1-216-089-91	RES,CHIP	47K	5%	1/10W
R48	1-216-089-91	RES,CHIP	47K	5%	1/10W
R49	1-216-089-91	RES,CHIP	47K	5%	1/10W
R50	1-216-089-91	RES,CHIP	47K	5%	1/10W
R51	1-216-089-91	RES,CHIP	47K	5%	1/10W
R52	1-216-089-91	RES,CHIP	47K	5%	1/10W

Rf.NO.	PART NO.	DESCRIPTION			REMARK
R53	1-216-089-91	RES,CHIP	47K	5%	1/10W
R54	1-216-089-91	RES,CHIP	47K	5%	1/10W
R55	1-216-089-91	RES,CHIP	47K	5%	1/10W
R56	1-216-081-00	RES,CHIP	22K	5%	1/10W
R57	1-216-081-00	RES,CHIP	22K	5%	1/10W
R58	1-216-081-00	RES,CHIP	22K	5%	1/10W
R59	1-216-081-00	RES,CHIP	22K	5%	1/10W
R60	1-216-081-00	RES,CHIP	22K	5%	1/10W
R61	1-216-081-00	RES,CHIP	22K	5%	1/10W
R62	1-216-081-00	RES,CHIP	22K	5%	1/10W
R63	1-216-081-00	RES,CHIP	22K	5%	1/10W
R64	1-216-073-00	RES,CHIP	10K	5%	1/10W
R65	1-216-081-00	RES,CHIP	22K	5%	1/10W
R66	1-216-081-00	RES,CHIP	22K	5%	1/10W
R67	1-216-081-00	RES,CHIP	22K	5%	1/10W
R68	1-216-081-00	RES,CHIP	22K	5%	1/10W
R69	1-216-081-00	RES,CHIP	22K	5%	1/10W
R70	1-216-295-91	SHORT	0		
R71	1-216-295-91	SHORT	0		
R72	1-216-295-91	SHORT	0		
R73	1-216-295-91	SHORT	0		
R96	1-216-073-00	RES,CHIP	10K	5%	1/10W
R97	1-216-073-00	RES,CHIP	10K	5%	1/10W
R99	1-216-073-00	RES,CHIP	10K	5%	1/10W
R100	1-216-295-91	SHORT	0		
R101	1-216-295-91	SHORT	0		
R102	1-216-295-91	SHORT	0		
R103	1-216-295-91	SHORT	0		
R120	1-216-073-00	RES,CHIP	10K	5%	1/10W
R121	1-216-073-00	RES,CHIP	10K	5%	1/10W
R122	1-216-073-00	RES,CHIP	10K	5%	1/10W
R123	1-216-077-00	RES,CHIP	15K	5%	1/10W
R124	1-216-077-00	RES,CHIP	15K	5%	1/10W
R125	1-216-077-00	RES,CHIP	15K	5%	1/10W
R126	1-216-077-00	RES,CHIP	15K	5%	1/10W
R127	1-216-077-00	RES,CHIP	15K	5%	1/10W
R128	1-216-077-00	RES,CHIP	15K	5%	1/10W
R129	1-216-077-00	RES,CHIP	15K	5%	1/10W
R130	1-216-077-00	RES,CHIP	15K	5%	1/10W
R131	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R132	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R133	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R134	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R135	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R136	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R137	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R138	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R139	1-216-025-91	RES,CHIP	100	5%	1/10W
R140	1-216-025-91	RES,CHIP	100	5%	1/10W
R141	1-216-025-91	RES,CHIP	100	5%	1/10W
R142	1-216-025-91	RES,CHIP	100	5%	1/10W
R143	1-216-025-91	RES,CHIP	100	5%	1/10W
R144	1-216-025-91	RES,CHIP	100	5%	1/10W
R145	1-216-073-00	RES,CHIP	10K	5%	1/10W
R148	1-216-295-91	SHORT	0		
R151	1-216-073-00	RES,CHIP	10K	5%	1/10W
R152	1-216-073-00	RES,CHIP	10K	5%	1/10W
R154	1-216-073-00	RES,CHIP	10K	5%	1/10W
R155	1-216-073-00	RES,CHIP	10K	5%	1/10W
R156	1-216-073-00	RES,CHIP	10K	5%	1/10W

Rf.NO.	PART NO.	DESCRIPTION			REMARK
R157	1-216-295-91	SHORT	0		
R159	1-249-481-11	CARBON	3.9	5%	1/2W F
R160	1-249-481-11	CARBON	3.9	5%	1/2W F
R180	1-216-089-91	RES,CHIP	47K	5%	1/10W
R181	1-216-089-91	RES,CHIP	47K	5%	1/10W
R182	1-216-089-91	RES,CHIP	47K	5%	1/10W
R184	1-216-073-00	RES,CHIP	10K	5%	1/10W
R185	1-216-073-00	RES,CHIP	10K	5%	1/10W
R186	1-216-073-00	RES,CHIP	10K	5%	1/10W
R187	1-216-073-00	RES,CHIP	10K	5%	1/10W
R188	1-216-073-00	RES,CHIP	10K	5%	1/10W
R226	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R227	1-216-025-91	RES,CHIP	100	5%	1/10W
R228	1-249-428-11	CARBON	8.2K	5%	1/4W F
R229	1-249-428-11	CARBON	8.2K	5%	1/4W F
R230	1-249-428-11	CARBON	8.2K	5%	1/4W F
R231	1-249-428-11	CARBON	8.2K	5%	1/4W F
R232	1-216-089-91	RES,CHIP	47K	5%	1/10W
R233	1-216-089-91	RES,CHIP	47K	5%	1/10W
R235	1-216-295-91	SHORT	0		
R237	1-216-295-91	SHORT	0		

<RELAY>

RY1	1-755-082-11	RELAY, 2 WIREWOUND LATCHING
RY2	1-755-082-11	RELAY, 2 WIREWOUND LATCHING

<SWITCH>

SW1	1-762-994-11	SWITCH, ROTARY (ID)
SW2	1-762-994-11	SWITCH, ROTARY (MODE)
SW3	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (RESET)

<CRYSTAL>

X1	1-579-319-11	OSCILLATOR, CRYSTAL (24.0MHz)
X2	1-579-317-11	OSCILLATOR, CRYSTAL (1.8532MHz)

****

MISCELLANEOUS

****

⚠	1-251-148-11	INLET, AC (WITH FILTER)
⚠	1-468-326-11	SWITCHING REGULATOR
*	1-506-624-11	CONNECTOR, PS 18P
⚠	1-570-117-51	SWITCH, SEESAW (AC POWER)

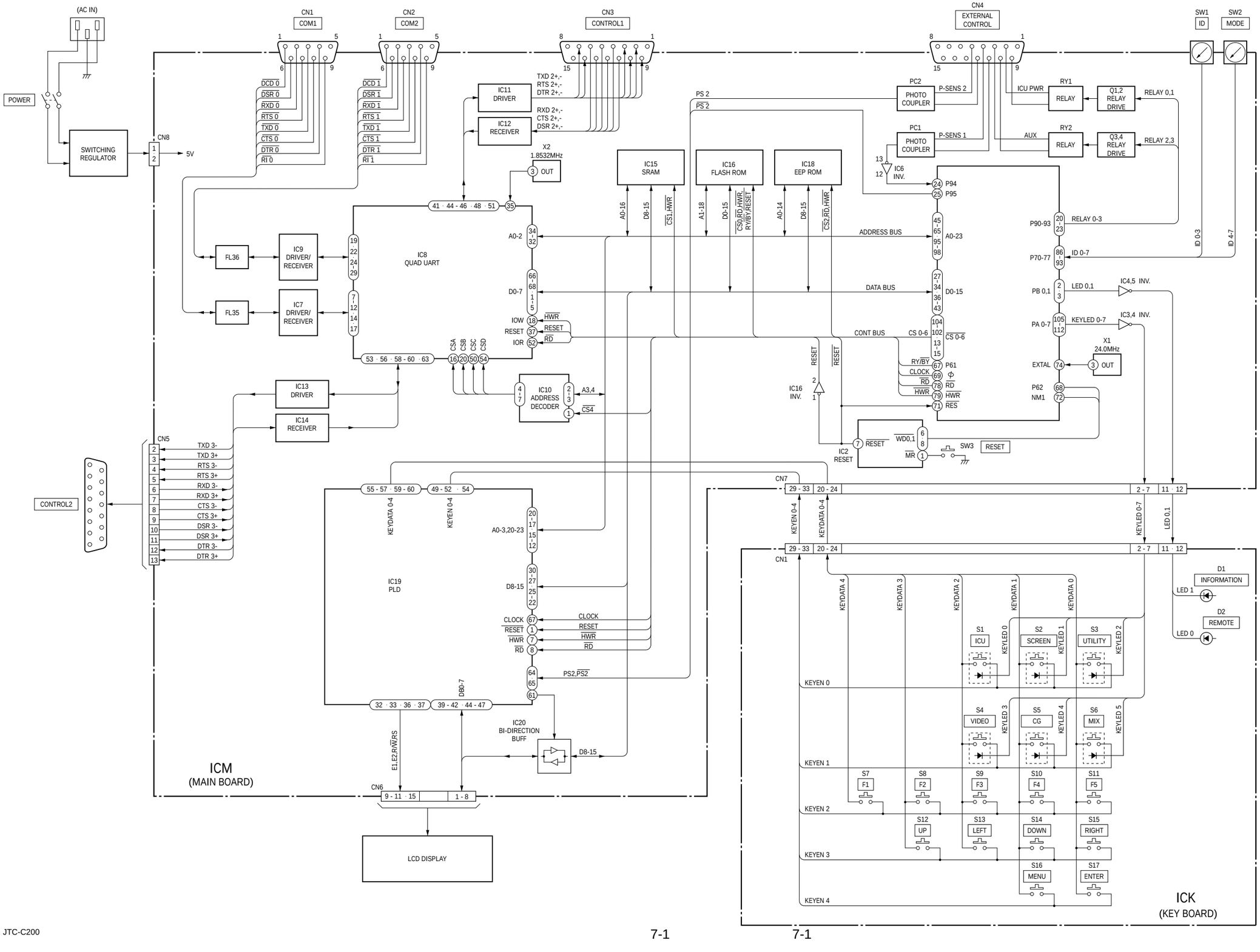
****

ACCESSORIES & PACKING MATERIALS

****

⚠	1-534-827-14	CORD, POWER (125V/10A) (US/CND)
⚠	1-551-631-15	CORD, POWER (250V/10A) (AEP)
⚠	1-782-059-11	CORD, POWER (120V/7A) (JAPAN)
	3-864-848-01	MANUAL, INSTRUCTION (JAPANESE)
	3-864-848-11	MANUAL, INSTRUCTION (ENGLISH)
	3-864-848-21	MANUAL, INSTRUCTION (GERMAN)
	3-864-848-31	MANUAL, INSTRUCTION (FRENCH)
	3-864-848-41	MANUAL, INSTRUCTION (SPANISH)
	3-864-848-51	MANUAL, INSTRUCTION (ITALIAN)

SECTION 7
BLOCK DIAGRAM



SECTION 8
DIAGRAMS

8-1. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics.
- All electrolytics are in 50 V unless otherwise specified.
- All resistors are in ohms, 1/4 W in resistance, 1/10W in chip resistance.
  kΩ = 1000 Ω, MΩ = 1000k Ω
- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

Reference information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NONFRAMMABLE CARBON
	FUSE	: NONFLAMMABLE FUSIBLE
	RS	: NONFLAMMABLE METAL OXIDE
	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
	※	: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

The components identified ⚠ marked are critical for safety.
Replace only with the part number specified.

Les composants identifiés par la marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

- ケミタン，タンタルを除くコンデンサで耐圧50 V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）
- ケミコン，タンタルのコンデンサで耐圧50Vは省略。
- 抵抗で指示のないものは1/4 W，チップ抵抗は1/10 Wです。
  単位は全てΩ。k Ω = 1000 Ω，M Ω = 1000 kΩ
- 印はヒューズ抵抗。
- 印は不燃性抵抗。
- △ 印は内蔵部品。
- 印はパネル表示および調整名称。
- 半固定抵抗および可変抵抗器の特性カーブ（B）は省略。

－部品特性省略表－

- 固定抵抗

RN	：金属被膜
RC	：ソリッド
FPRD	：不燃性カーボン
FUSE	：不燃性ヒューズ
RS	：不燃性酸化金属被膜
RB	：不燃性セメント
RW	：不燃性巻線
※	：調整抵抗

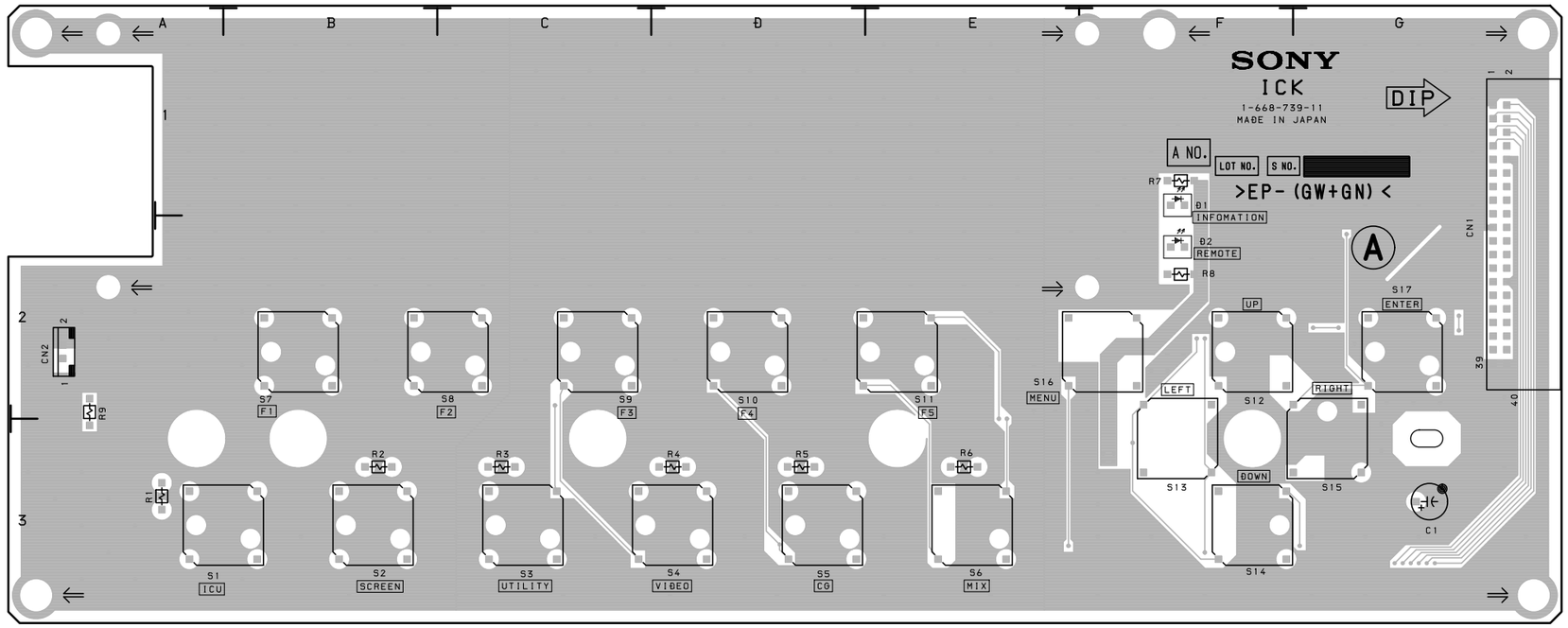
- マイクロインダクタ

  LF−8B ：マイクロインダクタ

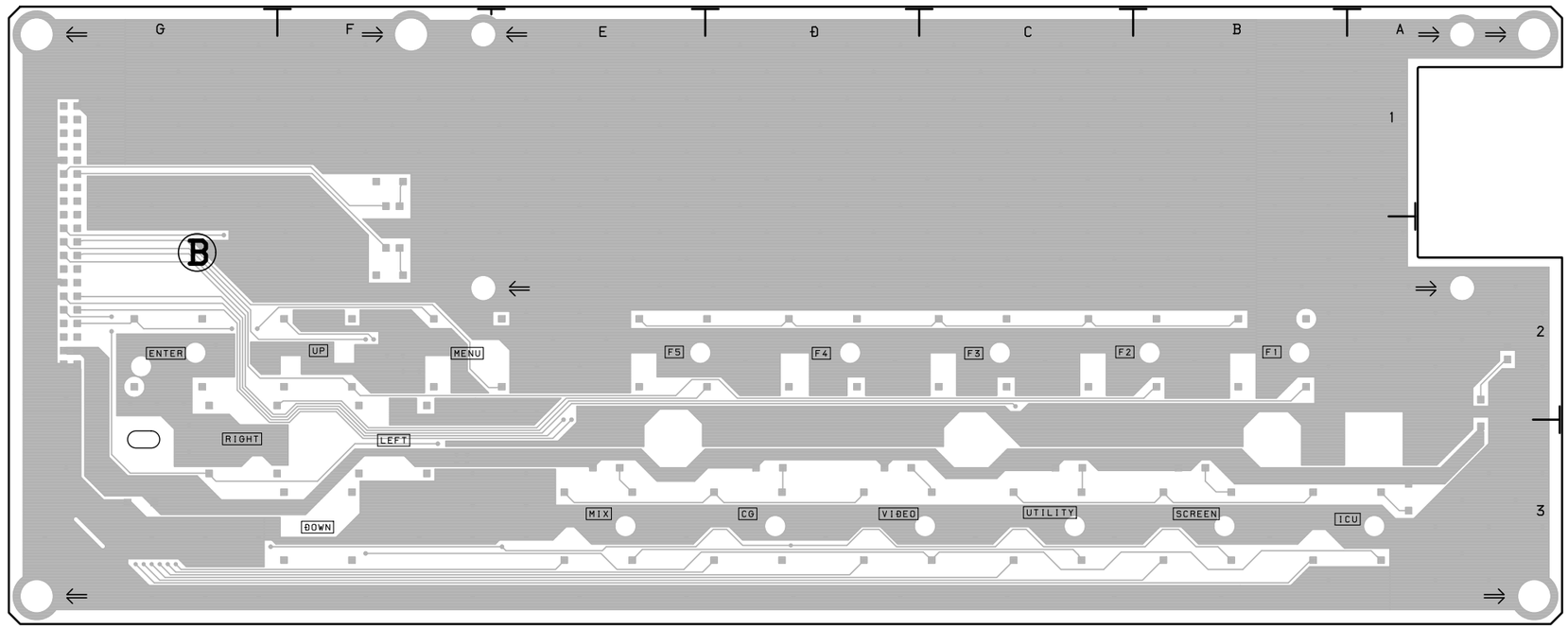
- コンデンサ

TA	：タンタル
PS	：スチロール
PP	：ポリプロピレン
PT	：マイラ
MPS	：メタライズドポリエステル
MPP	：メタライズドポリプロピレン
ALB	：バイポーラ
ALT	：高温用
ALR	：ハイリップル

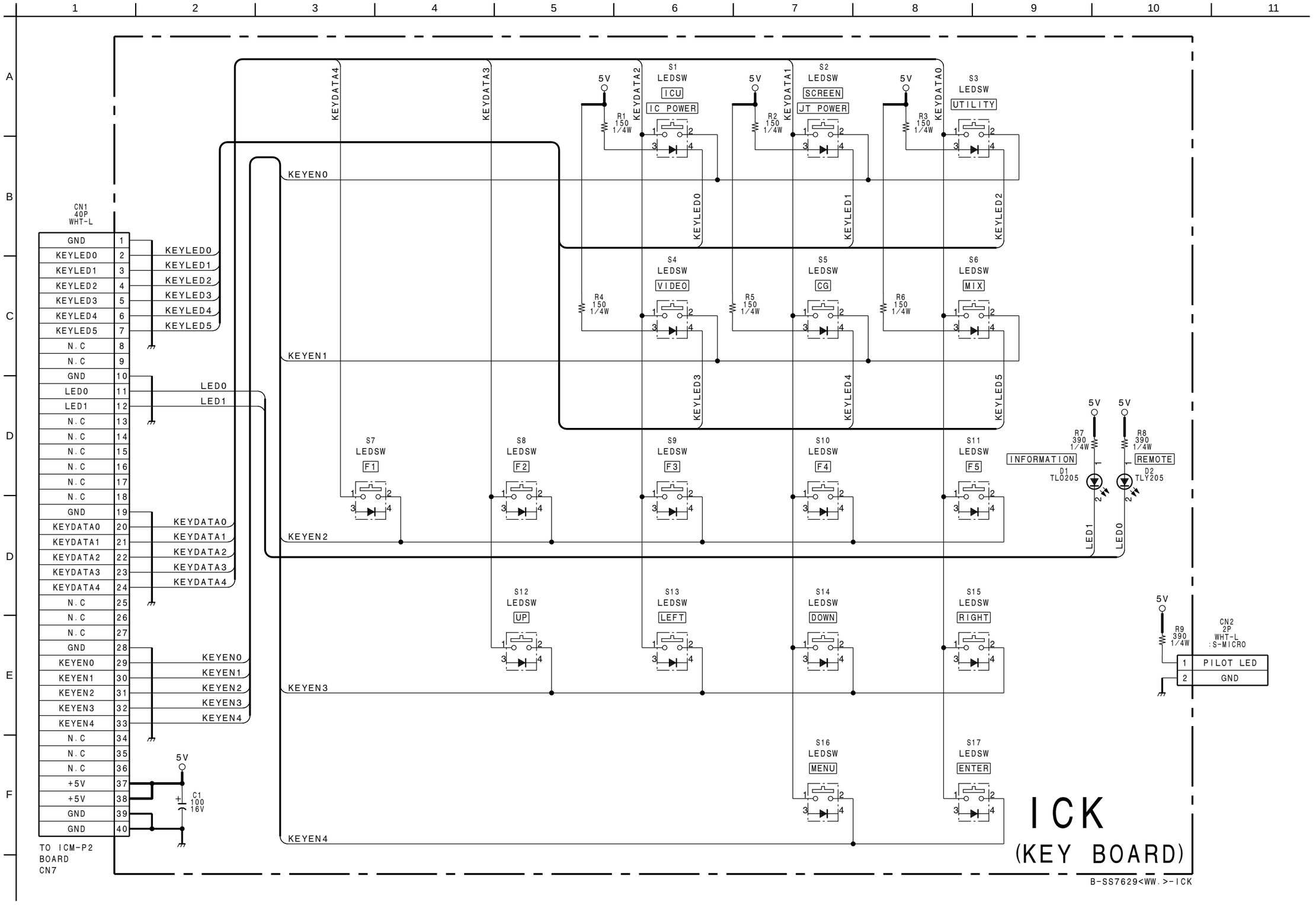
⚠印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

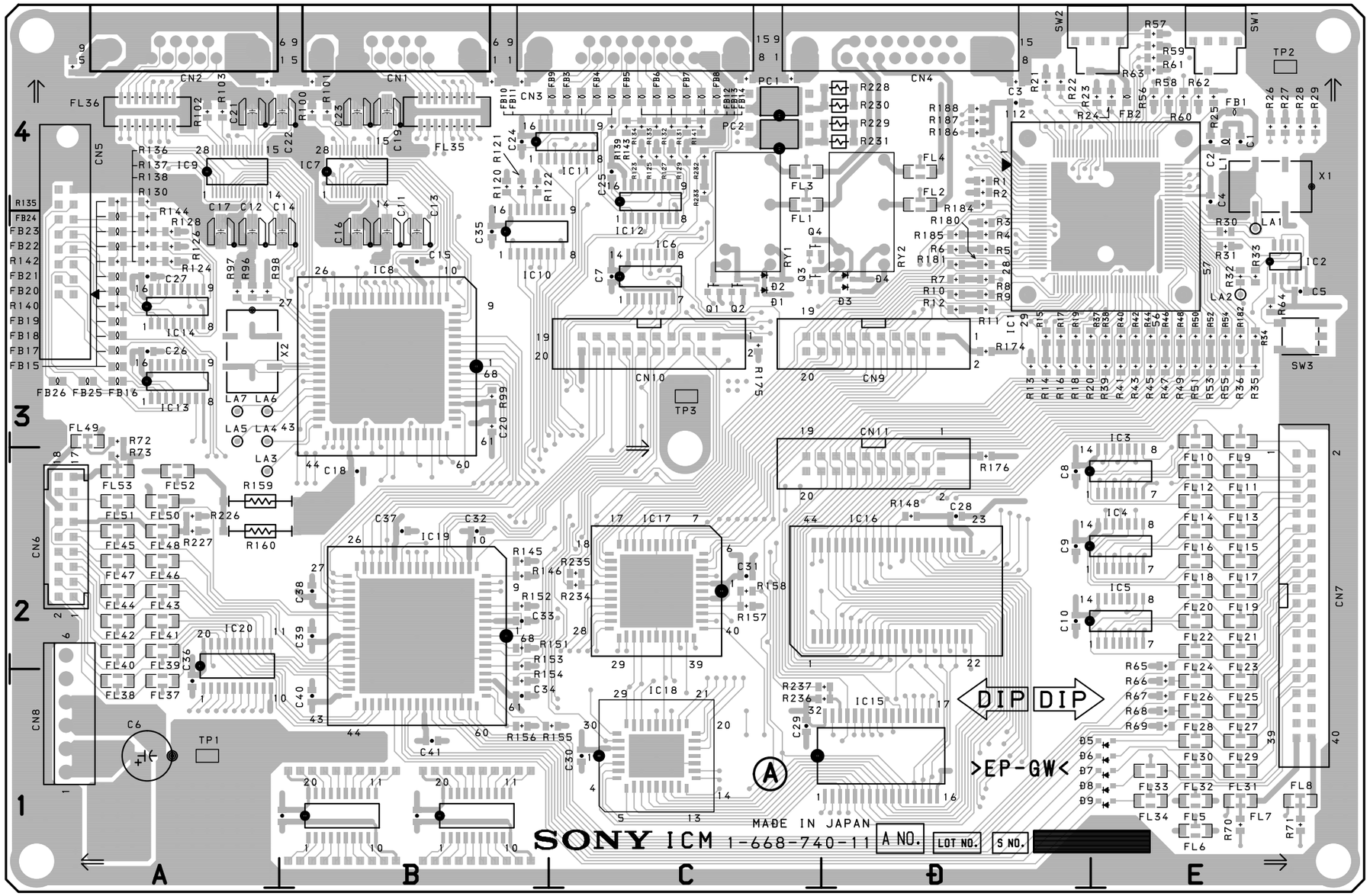


ICK – A SIDE –
SUFFIX: -11



ICK – B SIDE –
SUFFIX: -11


CN1
40P
WHT-L
GND 1
KEYLED0 2
KEYLED1 3
KEYLED2 4
KEYLED3 5
KEYLED4 6
KEYLED5 7
N.C 8
N.C 9
GND 10
LED0 11
LED1 12
N.C 13
N.C 14
N.C 15
N.C 16
N.C 17
N.C 18
GND 19
KEYDATA0 20
KEYDATA1 21
KEYDATA2 22
KEYDATA3 23
KEYDATA4 24
N.C 25
N.C 26
N.C 27
GND 28
KEYEN0 29
KEYEN1 30
KEYEN2 31
KEYEN3 32
KEYEN4 33
N.C 34
N.C 35
N.C 36
+5V 37
+5V 38
GND 39
GND 40
TO ICM-P2
BOARD
CN7
5V
C1
100
16V
KEYDATA4
KEYDATA3
KEYDATA2
KEYDATA1
KEYDATA0
KEYEN0
KEYEN1
KEYEN2
KEYEN3
KEYEN4
LED0
LED1
S1 LEDSW ICU IC POWER
S2 LEDSW SCREEN JT POWER
S3 LEDSW UTILITY
S4 LEDSW VIDEO
S5 LEDSW CG
S6 LEDSW MIX
S7 LEDSW F1
S8 LEDSW F2
S9 LEDSW F3
S10 LEDSW F4
S11 LEDSW F5
S12 LEDSW UP
S13 LEDSW LEFT
S14 LEDSW DOWN
S15 LEDSW RIGHT
S16 LEDSW MENU
S17 LEDSW ENTER
R1 150 1/4W
R2 150 1/4W
R3 150 1/4W
R4 150 1/4W
R5 150 1/4W
R6 150 1/4W
R7 390 1/4W
R8 390 1/4W
R9 390 1/4W
INFORMATION
D1 TL0205
REMOTE
D2 TLY205
CN2
2P
WHT-L
:S-MICRO
1 PILOT LED
2 GND
ICK
(KEY BOARD)
B-SS7629<WW.>-ICK

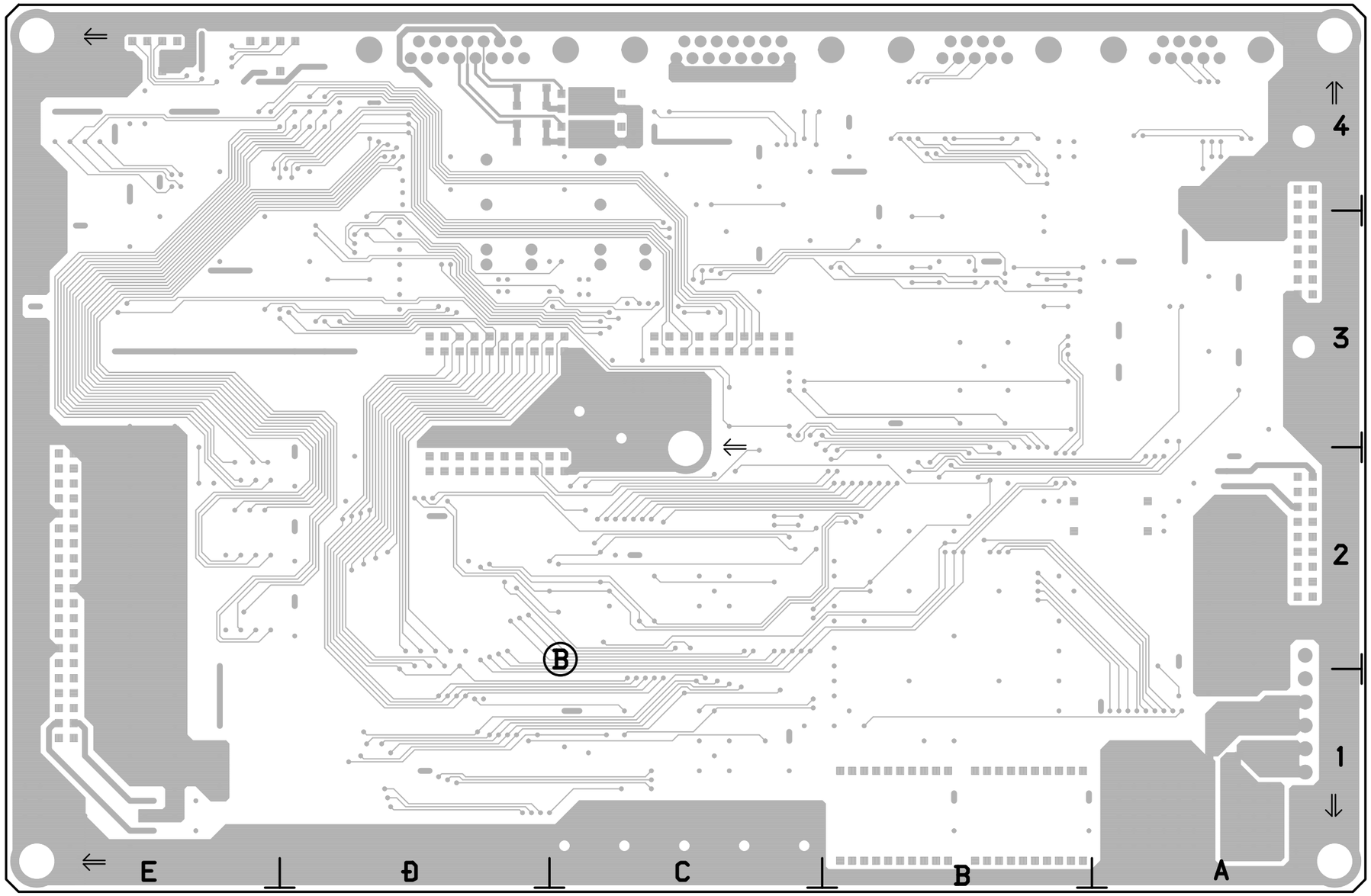


ICM **– A SIDE –**

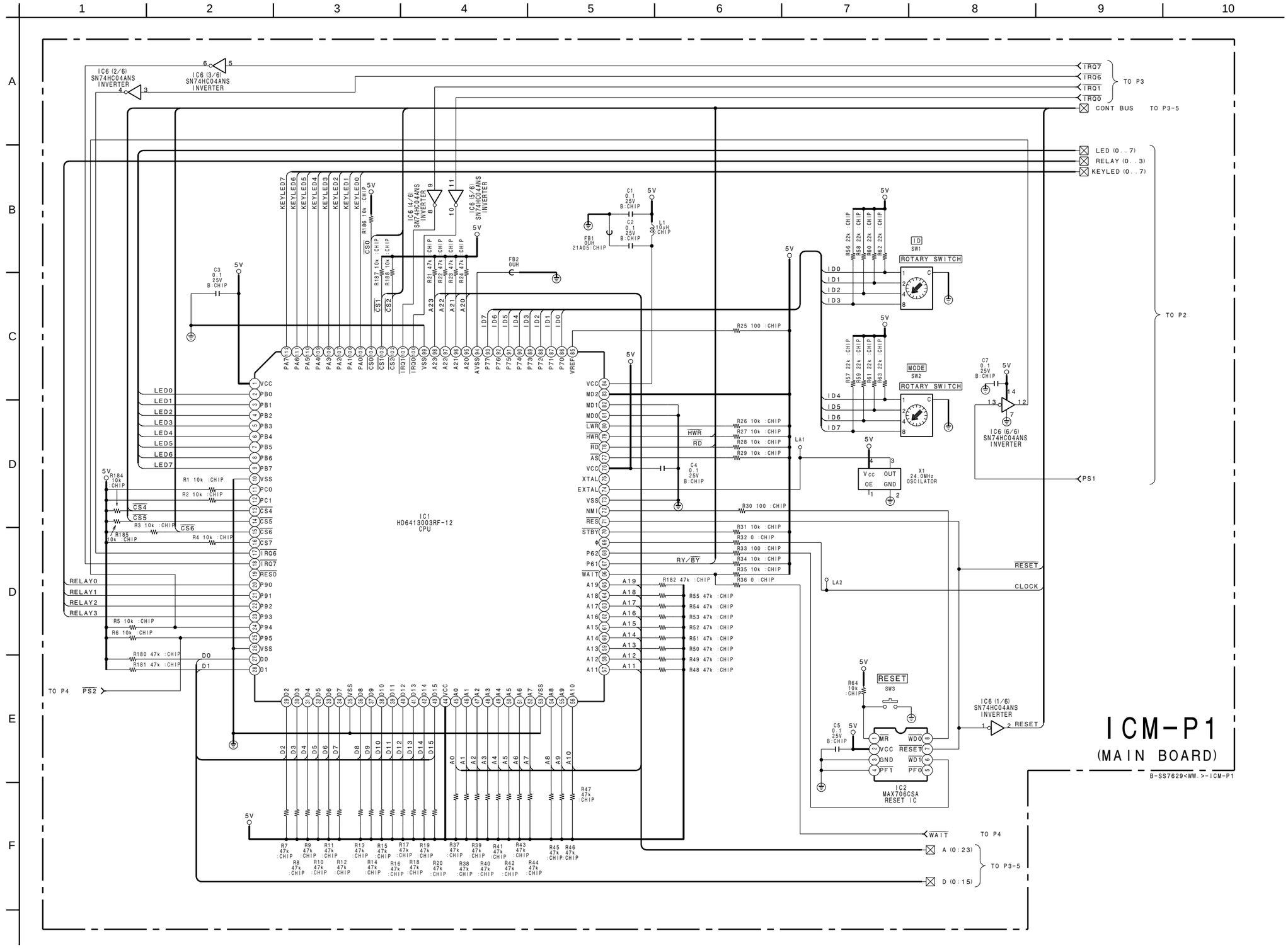
SUFFIX: -11

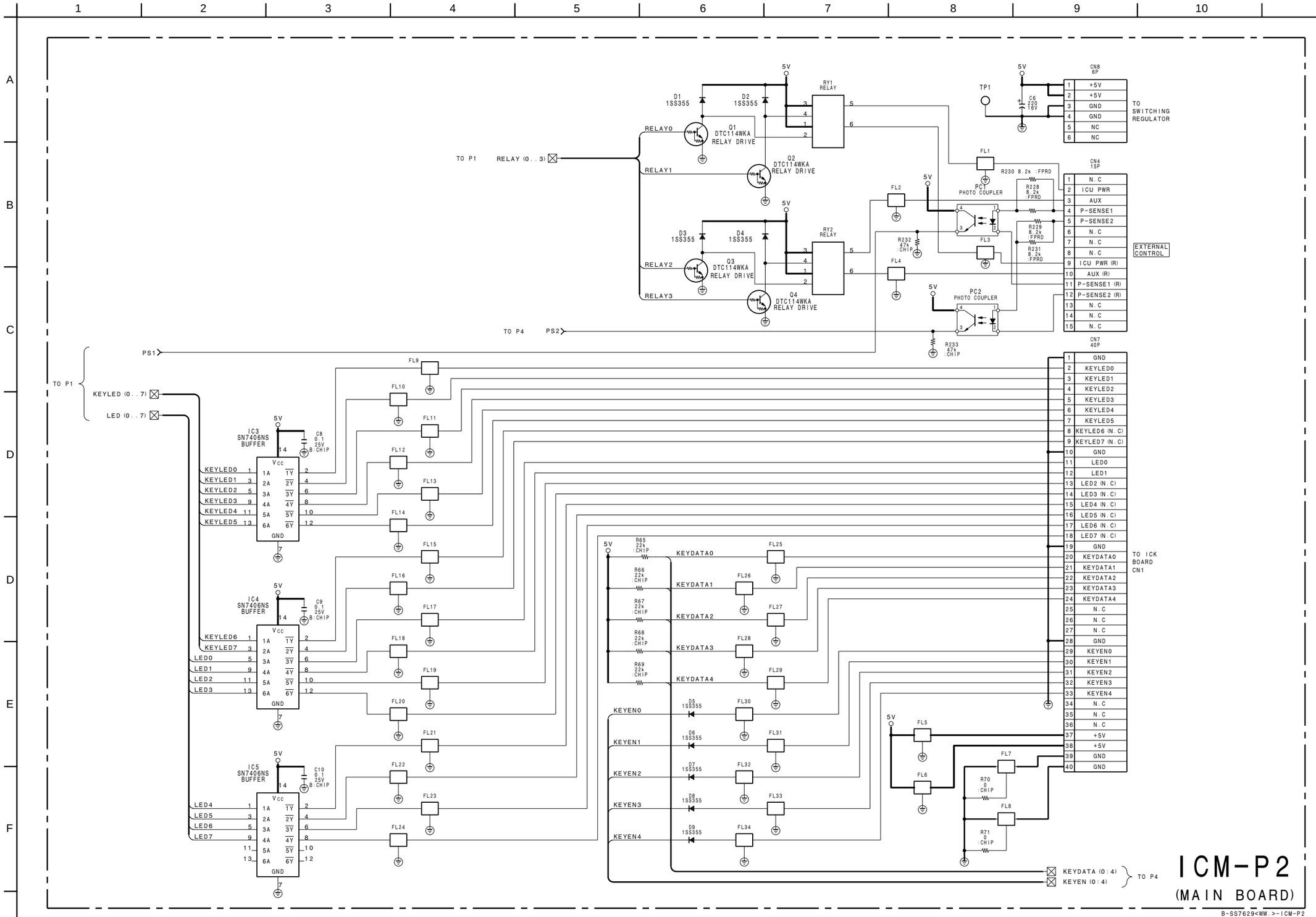
ICM BOARD

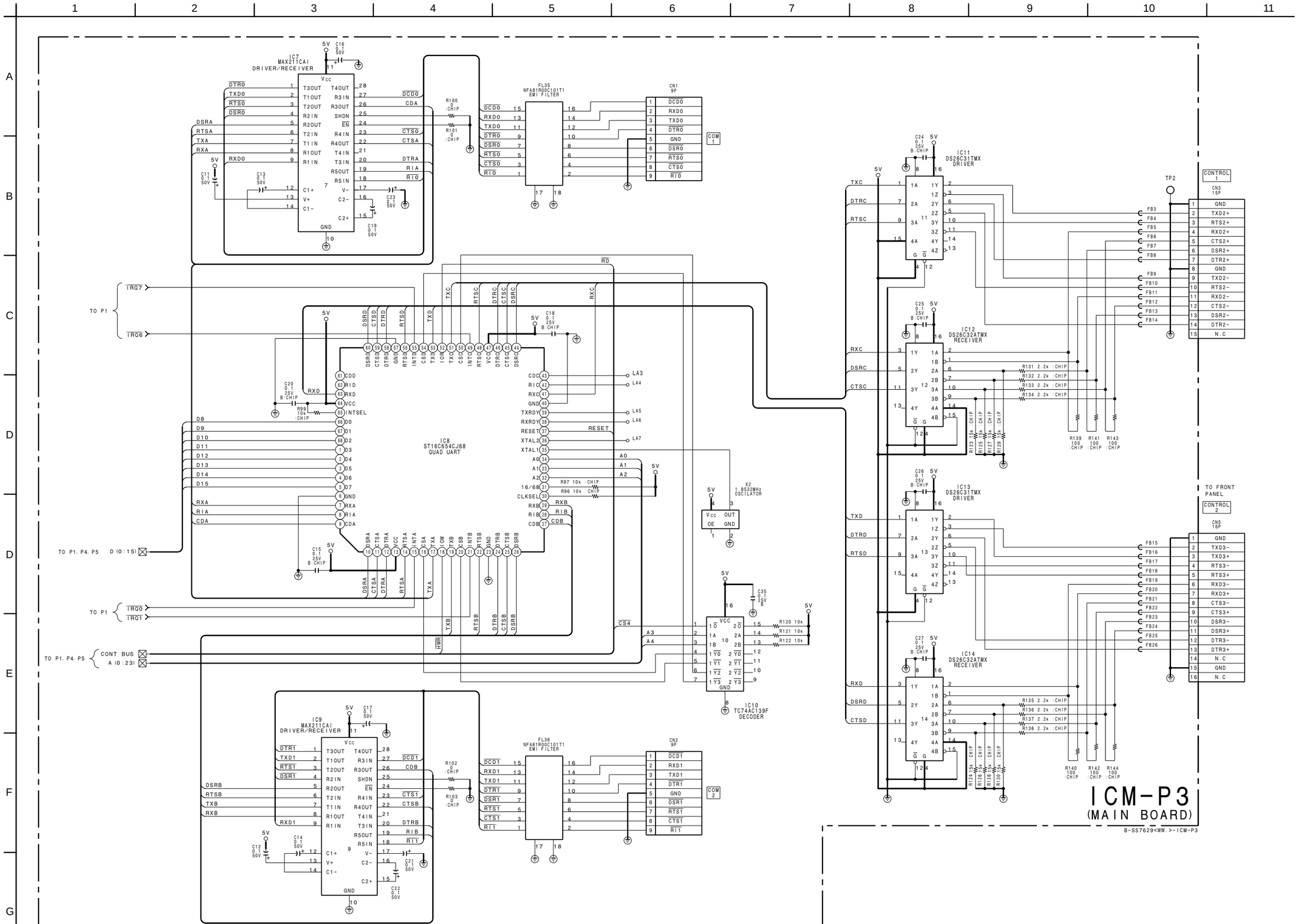
D1	C-3
D2	C-3
D3	D-3
D4	D-3
D5	E-1
D6	E-1
D7	E-1
D8	E-1
D9	E-1
IC1	E-3
IC2	E-3
IC3	E-2
IC4	E-2
IC5	E-2
IC6	C-3
IC7	B-4
IC8	B-3
IC9	A-4
IC10	B-3
IC11	C-4
IC12	C-4
IC13	A-3
IC14	A-3
IC15	D-1
IC16	D-2
IC18	C-1
IC19	B-2
IC20	A-2
Q1	C-3
Q2	C-3
Q3	C-3
Q4	C-3
TP1	A-1
TP2	E-4
TP3	C-3

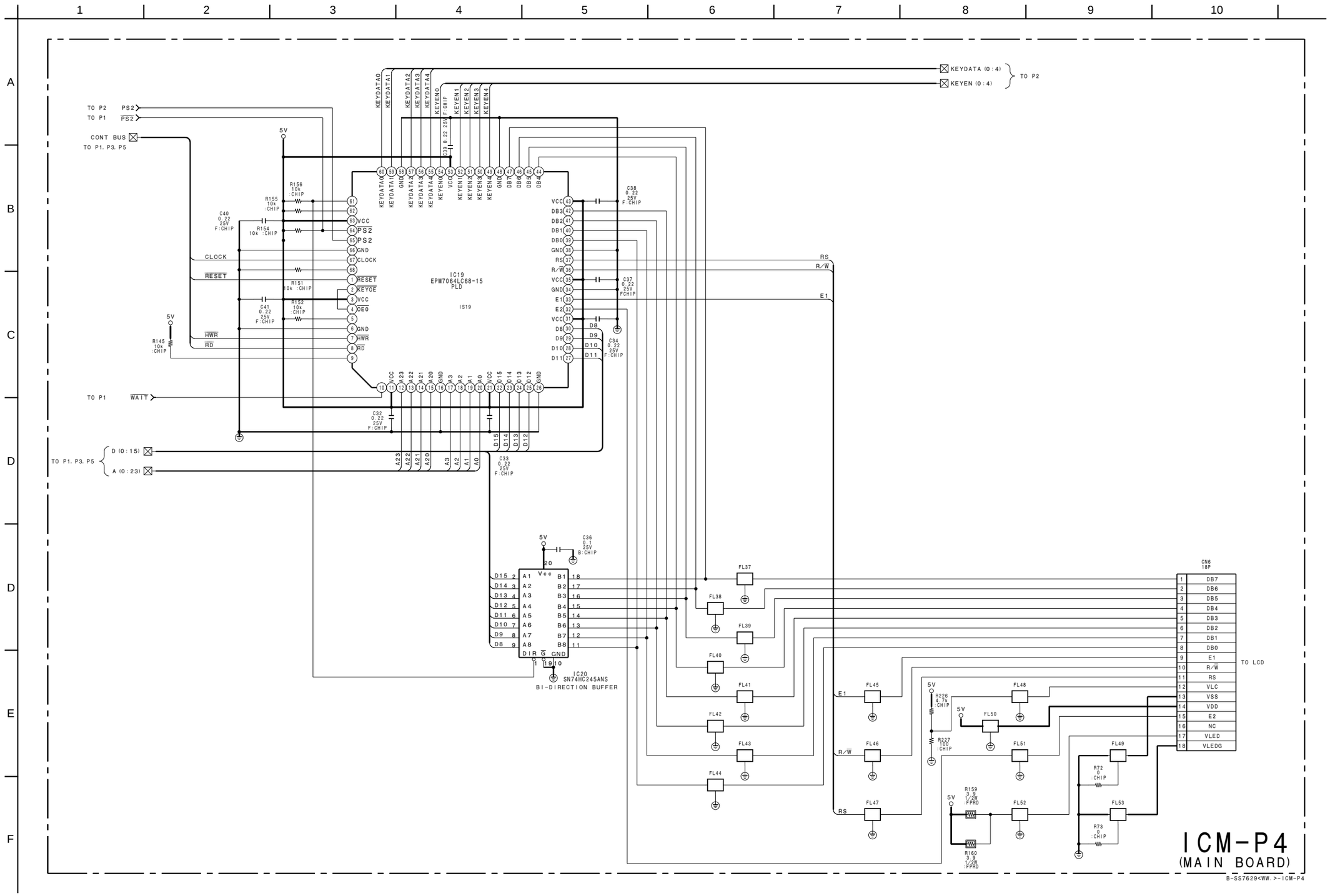


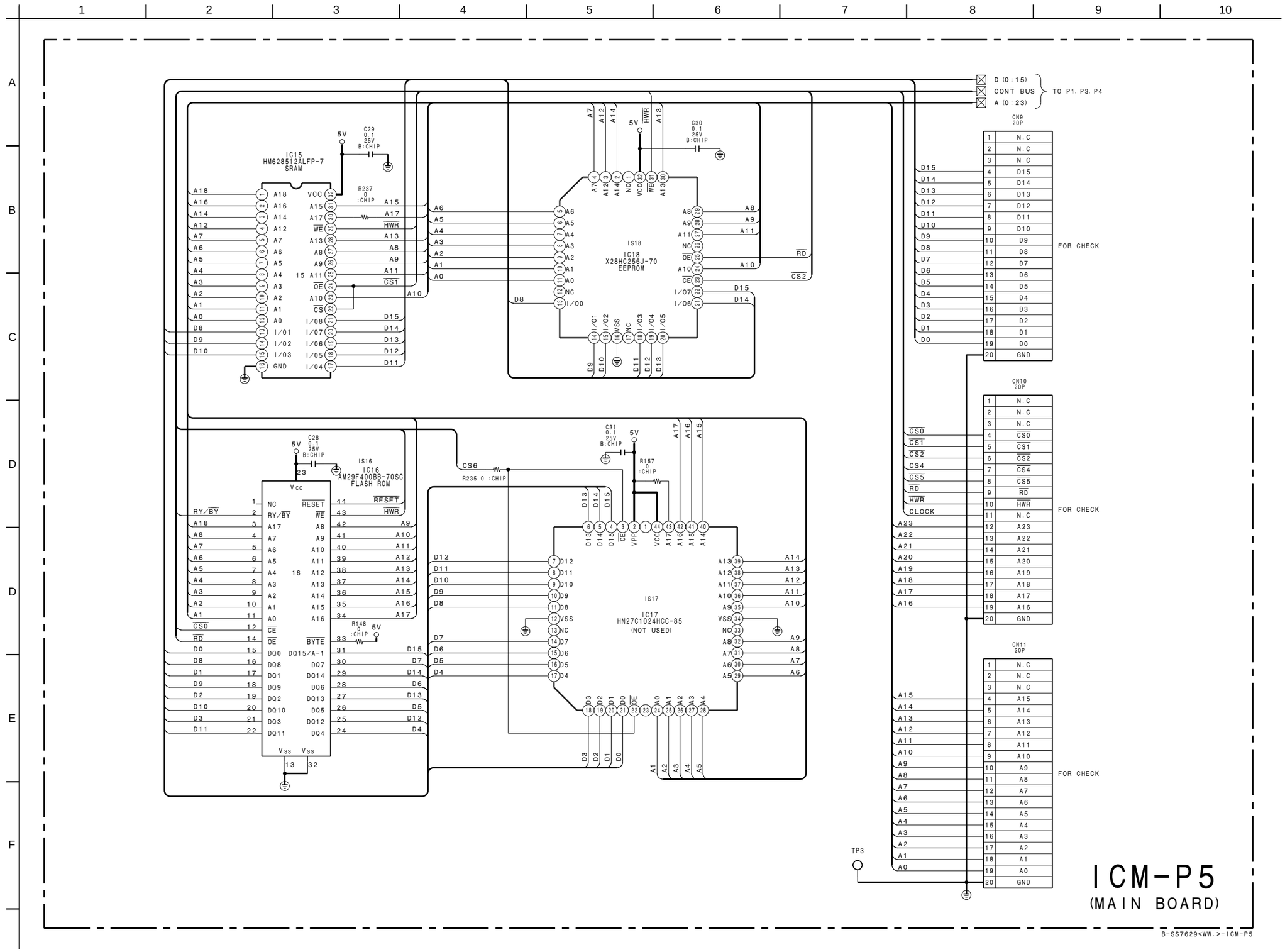
ICM – B SIDE –
SUFFIX: -11


IC6 (2/6) SN74HC04ANS INVERTER
IC6 (3/6) SN74HC04ANS INVERTER
IC6 (4/6) SN74HC04ANS INVERTER
IC6 (5/6) SN74HC04ANS INVERTER
IC6 (6/6) SN74HC04ANS INVERTER
IC6 (1/6) SN74HC04ANS INVERTER
IC1 HD6413003RF-12 CPU
IC2 MAX706CSA RESET IC
X1 24.0MHz OSCILLATOR
ROTARY SWITCH
SW1
SW2
SW3
TO P3
TO P2
TO P3-5
TO P4
TRQ7
TRQ6
TRQ1
TRQ0
CONT BUS
LED (0..7)
RELAY (0..3)
KEYLED (0..7)
RESET
CLOCK
WAIT
A (0:23)
D (0:15)
PS1
PS2
RY/BY
HWR
RD
ICM-P1
(MAIN BOARD)
B-SS7629<WW.>-ICM-P1


1 2 3 4 5 6 7 8 9 10 11
A B C D D E F G
D1 1SS355
D2 1SS355
RY1 RELAY
Q1 DTC114WKA RELAY DRIVE
Q2 DTC114WKA RELAY DRIVE
D3 1SS355
D4 1SS355
RY2 RELAY
Q3 DTC114WKA RELAY DRIVE
Q4 DTC114WKA RELAY DRIVE
RELAY0
RELAY1
RELAY2
RELAY3
TO P1
RELAY (0..3)
TP1
C6 220 16V
CN8 6P
+5V
+5V
GND
GND
NC
NC
TO SWITCHING REGULATOR
FL1
FL2
FL3
FL4
PC1 PHOTO COUPLER
PC2 PHOTO COUPLER
R230 8.2k :FPRD
R228 8.2k :FPRD
R229 8.2k :FPRD
R231 8.2k :FPRD
R232 47k :CHIP
R233 47k :CHIP
CN4 15P
N.C
ICU PWR
AUX
P-SENSE1
P-SENSE2
N.C
N.C
N.C
ICU PWR (R)
AUX (R)
P-SENSE1 (R)
P-SENSE2 (R)
N.C
N.C
N.C
EXTERNAL CONTROL
TO P4
PS2
PS1
TO P1
KEYLED (0..7)
LED (0..7)
IC3 SN7406NS BUFFER
IC4 SN7406NS BUFFER
IC5 SN7406NS BUFFER
C8 0.1 25V B.CHIP
C9 0.1 25V B.CHIP
C10 0.1 25V B.CHIP
KEYLED0
KEYLED1
KEYLED2
KEYLED3
KEYLED4
KEYLED5
KEYLED6
KEYLED7
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
FL9
FL10
FL11
FL12
FL13
FL14
FL15
FL16
FL17
FL18
FL19
FL20
FL21
FL22
FL23
FL24
R65 22k :CHIP
R66 22k :CHIP
R67 22k :CHIP
R68 22k :CHIP
R69 22k :CHIP
KEYDATA0
KEYDATA1
KEYDATA2
KEYDATA3
KEYDATA4
KEYEN0
KEYEN1
KEYEN2
KEYEN3
KEYEN4
FL25
FL26
FL27
FL28
FL29
FL30
FL31
FL32
FL33
FL34
D5 1SS355
D6 1SS355
D7 1SS355
D8 1SS355
D9 1SS355
FL5
FL6
FL7
FL8
R70 0 :CHIP
R71 0 :CHIP
CN7 40P
GND
KEYLED0
KEYLED1
KEYLED2
KEYLED3
KEYLED4
KEYLED5
KEYLED6 (N.C)
KEYLED7 (N.C)
GND
LED0
LED1
LED2 (N.C)
LED3 (N.C)
LED4 (N.C)
LED5 (N.C)
LED6 (N.C)
LED7 (N.C)
GND
KEYDATA0
KEYDATA1
KEYDATA2
KEYDATA3
KEYDATA4
N.C
N.C
GND
KEYEN0
KEYEN1
KEYEN2
KEYEN3
KEYEN4
N.C
N.C
N.C
+5V
GND
GND
TO ICK BOARD CN1
KEYDATA (0:4)
KEYEN (0:4)
TO P4
ICM-P2
(MAIN BOARD)
B-SS7629<WW.>-ICM-P2


IC7
MAX211CAI
DRIVER/RECEIVER
FL35
NFA81R00C101T1
EMI FILTER
CN1
9P
COM 1
IC8
ST16C654CJ68
QUAD UART
IC9
MAX211CAI
DRIVER/RECEIVER
FL36
NFA81R00C101T1
EMI FILTER
CN2
9P
COM 2
IC10
TC74AC139F
DECODER
X2
1.8532MHz
OSCILLATOR
IC11
DS26C31TMX
DRIVER
IC12
DS26C32ATMX
RECEIVER
IC13
DS26C31TMX
DRIVER
IC14
DS26C32ATMX
RECEIVER
TP2
CONTROL 1
CN3
15P
TO FRONT PANEL
CONTROL 2
CN5
16P
TO P1
TO P1, P4, P5
TO P1, P4, P5
ICM-P3
(MAIN BOARD)
B-SS7629<WW.>-ICM-P3


KEYDATA (0:4)
KEYEN (0:4)
TO P2
TO P2 PS2
TO P1 PS2
CONT BUS
TO P1, P3, P5
5V
IC19
EPM7064LC68-15
PLD
IS19
CLOCK
RESET
HWR
RD
WAIT
TO P1
D (0:15)
A (0:23)
TO P1, P3, P5
RS
R/W
E1
IC20
SN74HC245ANS
BI-DIRECTION BUFFER
CN6
18P
TO LCD
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
E1
R/W
RS
VLC
VSS
VDD
E2
NC
VLED
VLEDG
ICM-P4
(MAIN BOARD)
B-SS7629<WW.>-ICM-P4


D (0:15)
CONT BUS
A (0:23)
TO P1, P3, P4
IC15
HM628512ALFP-7
SRAM
IC18
X28HC256J-70
EEPROM
IC16
AM29F400BB-70SC
FLASH ROM
IC17
HN27C1024HCC-85
(NOT USED)
CN9
20P
CN10
20P
CN11
20P
FOR CHECK
TP3
ICM-P5
(MAIN BOARD)
B-SS7629<WW.>-ICM-P5

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